EVMS

Guidebook

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CHAPTER 1

Earned Value Management Systems (EVMS) Guidebook

INTRODUCTION

This chapter is about the role Defense Contract Management Agency (DCMA) plays as the Executive Agent for Earned Value Management (EVM) and activities that occur during the contractual EVMS Pre-Award phase.

EXECUTIVE AGENT ROLE

DCMA as the assigned DoD Executive Agent, is responsible for ensuring the effective implementation and coordination of earned value management within DoD. The Executive Agent is responsible for ensuring the integrity and effectiveness in application of processes related to earned value management. The Executive Agent maintains liaison functions with Industry, as a DoD representative for issues related to earned value management. The Executive Agent retains formal cognizance for the maintenance of this guide and provisions included herein.

As the assigned DoD Executive Agent for Earned Value Management, DCMA is responsible for the following:

- Ensuring the integrity and effectiveness of EVM process applications.
- Maintaining information relative to specific supplier system acceptance.
- Maintaining master database of Supplier compliant systems.
- Assist source selection and special reviews requested by buying activities.
- Determine if withdrawal of acceptance of supplier EVM system is appropriate.
- Submits letter to cognizant ACO to advise supplier of withdrawal of acceptance letter/AA.
- Content, maintenance, and coordination of the Earned Value Information Guide (EVMIG)

CHAPTER 2

EVMS EARLY CAS / PRE-AWARD ACTIVITIES

SUPPLIER SYSTEM ACCEPTANCE STATUS

DCMA Contract Administration Offices (CMOs) will maintain a complete information file on the history of the supplier's performance measurement system acceptance at their respective locations. This information includes all EVMS reviews including Integrated Baseline Reviews (IBRs) and copies of all final reports conducted at each supplier location. The EVMS Monitor is the most likely person to maintain this information. The file contains the following information:

Supplier/Facility
DCMA Office
Lead Service
System Approval Date
Contract Type
Kind of Review
Program(s)

The CMO maintains information as to the current status of the supplier's system relative to change history and feedback from procuring activities on usefulness of the reported data from the system.

Acceptance Review Schedules

Access to acceptance review schedules is through the District Process champion. The EVMS Center or HQ DCMA maintains a current list of all past EVMS reviews, and a schedule of current and future acceptance reviews. The list contains the following information:

Supplier
DCMA Office
Program/Service
Procuring Activity POC
Review Type
Review Schedule
Review Director
Team Chief

Procuring Activity Liaison Office

In order for the CMO to be proactive during the pre-award phase of a new procurement or follow-on contract, close coordination and communication should be made with DCMA liaison offices assigned at the services major procuring activities. The liaison offices represent DCMA in matters related to both pre-award and post-award contract administration, help solve operational problems, explain available DCMA services, and improve customer service and communication. DCMA offices at major supplier locations that are aware that the supplier has submitted a

bid in response to a Request For Quotation (RFQ) should contact that procuring activity and offer assistance where needed.

The CMO will respond to any of the procuring activity's queries regarding the supplier's response to the solicitation, the present operation of the supplier's management control system, and the supplier's ability to meet the provisions of the EVMS. Where there is a current contract that has EVMS provisions, the CMO should proactively offer how the supplier is performing in accordance with EVMS requirements.

RESPONSIBILITIES PRIOR TO CONTRACT AWARD

Certain actions taken prior to contract award are related to subsequent surveillance activities.

Major Command Procuring Activity

The procuring activity has responsibility for determining its requirements for EVMS on new or existing programs. DFARS 252.234-7001 establishes the requirements for EVMS. Once the decision is made to apply EVMS on a new contract, the proper DoD FAR Supplement clause is included in the solicitation document. A supplier responding to the solicitation is required to indicate the extent to which the existing management control system meets the EVMS guidelines in DoD Instruction 5000.2-R, Appendix IV.

CMO and DCAA

Prior to contract award, the CMO and DCAA will respond to any of the procuring activity's queries regarding the supplier's response to the solicitation, the present operation of the supplier's management control system, and the supplier's ability to meet the EVMS. Where there is a current contract that has EVMS provisions, the CMO can answer questions relative to how the supplier is performing in accordance with EVMS requirements and can provide any other pertinent information.

RESPONSIBILITIES BETWEEN CONTRACT AWARD AND ACCEPTANCE (PRE-AWARD)

Surveillance of a supplier's management control system used on a contract requiring EVMS compliance officially commences with contract award. Prior to the acceptance of the management control system as being in conformance with the EVMS Guidelines, surveillance normally falls in the areas indicated in the following subparagraphs. If an inordinate amount of time passes before management control system acceptance, increased emphasis should be given to the surveillance responsibilities listed under post award surveillance.

Verification of Reported Data

It should be established early in the contract whether the supplier's procedures for accumulating costs and related data and reporting them to the Government accurately reflect internal accounting data. Reconciliation of reported information with internal accounting data is the responsibility of the supplier. The reconciliation should be reviewed periodically by the auditors. The evaluation of the reasonableness of scheduling data and

contract status as reported is the responsibility of the CMO.

Verification of data in a supplier's cost and schedule reports, both internal and external, is one of the important aspects of surveillance and requires extensive participation by the DCAA representatives and the Administrative Contracting Officer (ACO). When problem areas or inconsistencies are detected, the cognizant Program Support Team (PST) Members assigned at the CMO will be requested to investigate and report to the monitor. Evaluation of the external reports, such as Cost Performance Report (CPR), Contract Funds Status Report (CFSR), and Cost Schedule Status Report (C/SSR), should be accomplished at the time of submission.

Familiarization with Supplier's EVMS

During the pre-award phase, all surveillance personnel should become familiar with the supplier's management control system in preparation for assuming responsibilities as members of the compliance evaluation or IBR Team. Surveillance personnel should monitor the supplier's progress toward full compliance with the EVMS. The CMO should keep the cognizant service advised of the supplier's progress in upgrading the management control system to conform with the EVMS Guidelines.

Compliance Evaluation

The Earned Value Management Information Guide (EVMIG) addresses this subject in detail. It is necessary that the program management office, the procuring activity, the CMO, and DCAA be involved in the compliance evaluation activity. Because of the knowledge of the supplier's management control system acquired in the compliance evaluation, it is highly desirable that the CMO and DCAA individuals participating in the compliance evaluation remain active in the EVMS surveillance activity.

Integrated Baseline Review (IBR)

For all contracts requiring compliance with the guidelines, the validity of the Performance Measurement Baseline (PMB) will be substantiated through the conduct of an IBR. The intent of the IBR is to facilitate a process that involves the Program Manager (PM) and the technical staff in the management of the program using performance management information. An IBR is a formal review conducted by the Government PM and technical staff, jointly with their supplier counterparts, and the CMO. The review is conducted within six months of contract award to verify the technical content of the PMB and the accuracy of the related resource (budgets) and schedules. Section 4.2 of the EVM provides additional information on the IBR process.

EARLY CAS CMO EVM SUPPORT	The CMO EVMS Monitor and PST should seek out all opportunities to assist the procuring activity and the supplier in developing Acquisition Plans, Statement Of Work (SOW), Contract Work Breakdown Structure (CWBS), and schedules. It is at this stage of procurement that the DCMA CMO can provide assistance in assuring that all the proper EVMS references and documents are included. Refer to EVMIG, Section 2, Pre-Award Activities, for specific details.
Acquisition Plan	The Acquisition Plan developed by the procuring activity is an important document in the pre-contract phase. It details the process on how the hardware/software and/or services will be procured and indicates the requirements for cost, schedule, and technical performance measurement.
Statement of Work (SOW)	The SOW should contain a requirement to perform the contractual technical effort utilizing a guideline compliant EVMS that matches cost and schedule performance with technical progress.
Contract WORK Breakdown Structure (CWBS) Development	Guidance for a properly structured preliminary Work Breakdown Structure (WBS) can be found in DOD 5000.2-R, Part 4, Paragraph 4.4.2 http://www.acq.osd.mil/sa/asm/product.html and MIL-HDBK 881 (latest version) http://www.acq.osd.mil/pm/newpolicy/wbs/mil_hdbk_881/mil_hdbk_881.htm. The preliminary WBS is developed by the procuring agency and DCMA and expanded by the supplier to reflect the way work will be accomplished and to facilitate data collection and reporting and management considerations.
Contract Data Requirements List (CDRL)	The CMO should review all the cost and schedule CDRLs for excessive requirements and ensure that they identify the minimum data required and the appropriate data item description (DID). The CMO can assist the procuring activity in tailoring the five formats found in the Cost Performance Report (CPR) and make suggestions as to what CDRL tailoring has worked well with other programs administered at the CMO. The CMO should request in the pre-award process, that the supplier supply cost/schedule data in X12 EDI file format. As a minimum, the CMO should ensure their office is included on the distribution list for all cost and schedule CDRLs.

Chapter 3

SYSTEM SURVEILLANCE

3a. EVM System Acceptance

INTRODUCTION

The purpose of this chapter is to provide guidance about the process of accepting a supplier's EVMS including those seeking initial acceptance, as well as suppliers previously validated. Also included in this chapter are Advance Agreements (AA), their eligibility and benefits, pre-approval waiver for EVM System changes, and the withdrawal of supplier's EVMS validation.

SUPPLIER'S WITH A PREVIOUSLY VALIDATED EVMS

A supplier's system that has been previously validated Is recognized as 'acceptable' when the supplier has demonstrated that their system functions in the manner that meets the intent of the EVMS Guidelines defined in the "Industry Guidelines for Earned Value Management Systems" (ANSI Standard EIA-748-98) http://www.acq.osd.mil/pm/currentpolicy/currentpolicy.html.

Letter of Acceptance (LOA)

A previously validated EVM system is usually verified by a letter of acceptance from the service (and/or tri-service) that conducted the EVMS Demonstration Review (previously referred to as C/SCSC Demonstration Review). Just because a supplier has a previously validated system, doesn't necessarily mean that the system is still acceptable. The test is usually one of current utility and operation.

Single Process Initiative and Advance Agreement (AA)

If a supplier had a validated system that is kept current and in operation, the system is probably still acceptable. That is to say if the supplier has been using the EVM system and has been keeping the system current and up to date, maintaining records of changes and continuous improvement, the system will probably remain in a state of acceptance. The supplier should at this time consider using the Single Process Initiative (SPI) http://www.DCMA.hq.dla.mil/onebook/0.0/0.2/CMI.htm to present a block change through the Management Council for approval of the EVMS via the local DCMA. The transition from a Letter of Acceptance to an AA, may merely be a matter of drawing up the agreement and having it signed by all parties providing the system is still current and operating in accordance with the system description. The AA must be consistent with the type of validation that the supplier had been previously validated for *i.e.* R&D or Production. The AA may/may not include optional language incorporating the use of the waiver for pre-approval http://www.DCMA.hq.dla.mil/onebook/2.0/2.2/EVM.htm.bak of changes to the EVM System based on the strength and maturity of the suppliers system. However, be on the alert for suppliers that have a letter of acceptance, but have allowed the system to go dormant for some period of time (*i.e*. more than one complete calendar

year). There is a good chance that the latent system, when called upon, will not be able to meet the demands of current requirements.

Compliance Review

The health of the suppliers system and the degree of system compliance or non-compliance must be determined before a decision can be made as to the status of the EVMS. This review can be based on the Risk Management criteria and accomplished through a Systems Compliance Review. If the IBR reveals a system shortcoming, a Compliance Review may be necessary. Each CMO will develop their own schedules to assure implementation and compliance of the 32 EVM Guidelines.

EVMS Non-Compliance

An EVM system that is in a state of non-compliance is reason to withdraw any form of recognized validation that the supplier may have had. But we must exercise the utmost caution when considering (Hyper-Link Appendix A & Flow chart) withdrawal of a suppliers validation. This should only be considered after a Compliance Review of the suppliers system has been conducted and recommendations are presented and analyzed with the supplier, and a determination for corrective action is not acceptable by both parties.

If this is the case, the suppliers EVM system will not be recognized as acceptable and the suppliers system would be viewed in the same category as NOT having a previously validated system.

SUPPLIERS NOT PREVIOUSLY VALIDATED

When it is determined that a compliance evaluation will be conducted to assess a suppliers proposed EVMS, refer to the guidance found in the Initial Compliance Evaluations, Section 4-3 of the (EVMIG)http://www.acq.osd.mil/pm/currentpolicy/jig/evmig7.htm Supplier's initial validation is recognized as 'acceptable' when it meets the intent of the EVMS Guidelines defined in the "Industry Guidelines for Earned Value Management Systems" (ANSI Standard EIA-748). The Review Director will be available for guidance and interpretation of the Guidelines, as assigned by DCMA HQ, for the initial system acceptance and buying activity special reviews of the supplier’s EVMS acceptance.

Review Selection

The impetus for suppliers to pursue a validated system leading to an AA is usually a Request For Proposal (RFP). The notice of EVMS clause 252.234-7000 is included in the RFP for this purpose.

Suppliers that have not been previously accepted have several options available to them for evaluating their proposed system and submitting the results for acceptance. The supplier may elect to conduct one of the following reviews:

- Self Evaluation

- Self Evaluation with DCMA Participation
- Third Party Evaluation
- Government Evaluation

The unique aspects of these options will be discussed separately.

Supplier Management Commitment

Prior to starting on the acceptance process the supplier must first establish what the conditions are for the acceptance. The process may vary depending on the terms of the contract, type of contract (CPIF/AF, FFP), type of effort (R & D, Production), or the value of the contract.

The choice of the type of evaluation is the suppliers, but the evaluation process does not stand-alone. It must be supported by top management commitment. The commitment from corporate top management is one of the most important ingredients contributing to the success of the enterprise in achieving a recognized acceptable EVMS. The enterprise must be willing to commit capital resources as well as an obligation by management to use the system to manage with, once the system is in place. The commitment must be demonstrated by top management through the issuance and incorporation of that commitment via a "Letter of Commitment", signed by the president of the company. The commitment must also be incorporated in the company policies, practices and procedures, identifying the use of the EVM system as the company's recognized and preferred method of management.

Supplier Responsible for EVM System

Regardless of the evaluation process chosen, several things remain constant. The supplier is ultimately responsible for their EVM system, the evaluation process, and the results of the evaluation including the correction actions. A Team Leader is responsible for conducting the evaluation and the Government is ultimately responsible for the recommendation of acceptance.

Evaluation Team Participants

One of the most important elements of the evaluation is the "team". The team should consist of key supplier personnel supported by key Government participants. The supplier may consider other sources of support for this project, *i.e.* recommendations from; consultants, other divisions already having accepted systems, other suppliers (when appropriate).

Government Team Participants

The Government participants are major players in the acceptance process and the supplier should welcome their willingness to take part as "team members". From the Government side, the most important participant is the Review Director. The Review Director works closely with the supplier through all stages of the process to avoid unnecessary complications later in the process. Other Government members for consideration should include

people from the Program Management Office (PMO), DCMA CMO, DCMA HQ, DCMA District Process Champion, DCAA, and the EVM Center. The Government members have a great deal of expertise and they are willing to participate when appropriate. Since the Government will in the end, recommend the acceptance or denial of the suppliers system, it is in the best interest that each phase of the process get (not necessarily formal) Government concurrence. The Government team members need not be full time participants, but will be called upon frequently to review progress and submit comments and/or interpretation. The local DCMA CMO EVMS Monitor will probably be the Point Of Contact (POC) available for the supplier. The EVMS Monitor will keep the Government team members and the EVMS Center abreast of the progress and call upon their expertise as appropriate.

Burden of Proof

The burden of proof in verifying the EVMS meets the requirements of the guidelines is that of the supplier. The system being evaluated for acceptance must meet the requirements as defined in the guidelines. The supplier must provide documentation and evidence *i.e.* the suppliers system description, a System Evaluation Report including sample trace data, reports from other previous relevant reviews; IBR, PMR, PDR, and any other documentation requested, to the DCMA Executive Agent representative. The representative will review the documentation and evidence and if acceptable will recommend that system for acceptance. With the Governments recommendation for acceptance, the supplier may pursue an AA *hyperlink* through the cognizant ACO that is responsible for that suppliers activity.

SELF EVALUATION

Self-evaluation means that the supplier is basically responsible for reviewing it's own EVMS. The supplier will make sure that the system description defines all the business systems, practices, procedures and policies that are used in meeting the management guidelines defined in the Industry Guidelines for EVMS and/or the EVMIG. This may involve self-evaluation with appropriate Government involvement, third party certification or Government review.

Evaluation Process

The process consists of going through each of the 32 guideline items and documenting how the supplier’s processes and procedures conform to that item of the guidelines. This would include supporting evidence in the form of data traces and/or documentation samples used in normal operation. The ultimate goal is achieving EVMS validation through self evaluation and Government recommendation for acceptance resulting in an AA.

Evaluation Team

When the supplier conducts a self evaluation, a team consisting of their own responsible employees is utilized that may be supported by peer groups or outside consulting agencies and Government factions, *i.e.* local DCMA, DCAA, and DCMA HQ appointed

Review Director. The team is dedicated to verify that the system does in fact meet the requirements defined in the EVMIG, and/or the industry standards using the suppliers recognized best business practices as defined in the EVM system description.

Evaluation Report

The end product of the supplier's EVMS evaluation process is the Evaluation Report. This report will be submitted to the Review Director, for review and interpretation leading to recommendation for acceptance of the EVM system. The report should contain an Introduction, Purpose, Scope, Findings, Conclusions and Recommendations, and Exhibits and Appendixes. The report should summarize the findings that require corrective action and assign the surveillance of the corrective action to the CMO.

Previous Reviews Support The Current Review

A good point to keep in mind is that a supplier may use other previously conducted reviews to support the self evaluation so that the supplier does not have to be subjected to, or overburdened by redundant reviews. These previous reviews must be identified and may be used all or in part to verify any specific item of the guidelines. Any evidence provided by that previous review should be identified as originating and being related to that previous review if it is to be included as part of the self evaluation report. Previous reviews may in fact result in significant savings in time and resources.

SELF EVALUATION WITH DCMA PARTICIPATION

Self-evaluation with DCMA participation, is nearly the same as self-evaluation with the exception that the supplier or DCMA has requested to SHARE in the team lead role, team member role or the coordination of the evaluation. Participation can vary depending on the situation. It could be such that DCMA wants a representative sharing the role of the review Team Chief. In which case the supplier and DCMA will each have a representative sharing the role as Co-Team Chiefs. Or, it could be that DCMA wants a more intense participation. In this case most likely the supplier and DCMA will each have representatives sharing the role of co-team members.

Benefits

There are some benefits to having representatives of the Executive Agent participate in the evaluation. DCMA participation will provide additional team members, provide additional product expertise that could contribute to more appropriate EV methodology, and even expedite the evaluation process.

EVMS Stakeholders

The stakeholders could be consultants or representatives, representing the principles of numerous parties of multi-agency *i.e*. DOE, FAA or NASA, or multi-service *i.e*. any of the "joint" contracts. Other stakeholders could be the staff of an analysis group *i.e.* OUSD for A&T. or the DCMA Executive Agent, representing the buying activity.

Supplier Requests Customer Participation

Examples of situations that the **supplier** would like to have DCMA participation could be:
1. The supplier feels that DCMA has low confidence in the suppliers system and application of that system to their particular contract, and the supplier would like to change that image.
2. The supplier would like to strengthen the quality of the review team by engaging DCMA expertise.
3. The supplier feels that DCMA participation will lend more credence to the review in the eyes of the company employees.
4. The supplier feels that because of DCMA participation, the Government assessment of the resultant review report is more likely to yield a favorable recommendation for acceptance.

Customer Requests Participation

Examples of situations that **representatives of the Executive Agent** would request to have participation could be:
1. DCMA has low confidence in the suppliers system and application of that system to their particular contract. It could be that this is the first time the customer is working with this particular supplier.
2. This is a high-risk contract and DCMA would like to pro-actively engage in risk identification and management. Participation would strengthen the quality of the review team by engaging DCMA expertise in particular risk areas.
3. DCMA participation will demand more attention on the part of supplier management by emphasizing advocacy of EVMS.
4. The size complexity of the contract requires multiple suppliers being evaluated simultaneously and DCMA participation, will provide a thread of continuity between the systems.
5. The security nature of the suppliers business prohibits outside support, therefore the customer feels it's in the best interest of the contract to participate.
6. This is a high dollar contract and DCMA wishes to demonstrate a tight partnering relationship.

There are many reasons where either party would request DCMA participation. But, whatever the reason, participation is almost always welcomed by the supplier and encouraged by DCMA.

THIRD PARTY EVALUATION

Third Party Evaluation is when a supplier has limited time, knowledge and/or experience with EVMS and elects to call upon a third party (usually a consultant firm) to prepare the suppliers management system for acceptance by the Government.

Examples for Third Party Evaluation

Some examples of suppliers that elect to have a third party evaluation may fall under one of three different categories. First, the supplier is very new with little knowledge of the EVMS concepts, and has never been exposed to contracts where there has been an EVMS requirement. Second, they have been trying to get accepted for some time and with the outcome continually falling short of the mark. This supplier probably doesn't have any employees with enough EVMS expertise to do the job. It could also mean that their internal systems are too incompatible to be integrated. Third, the supplier just wants to get the evaluation process finished the fastest and easiest way.

Consultants Participation

Third Party Evaluation usually involves the consultant to reside at the supplier's facility for some time preparing the supplier for the EVMS evaluation. The resident consultant would generally have a supplier counterpart (could be supported by a group) that maintains responsibility, and shares in the EVMS preparation activity. The activity would include reviewing the suppliers existing management systems policies, practices, processes, and procedures to determine their applicability to the EVMS Guidelines. Any shortcomings of the systems would be identified and recommendations made for correction or improvement. Included in the preparation activity would be a training program directed toward the different levels of management (PM), Integrated Product Team (IPT) Managers, Mid-level Managers, & CAMs).Also included would be different levels of support activity (planners, controllers, schedulers, software and EVMS administrative support group). The end product would usually be a preliminary copy of the system description, some sort of mock demonstration review accompanied by a mock demonstration report and a high decree of preparedness for the real evaluation.

After the supplier has assessed the consultant's recommendation regarding the supplier's progress in developing a creditable EVMS, the supplier will make a determination at to what type of evaluation to propose.

At this point the supplier may choose to do a self-evaluation as defined above, and include the consultant as part of the evaluation review team. Alternatively, the supplier may choose to have the third party, the consultant, do the review in entirety and submit the review report to the Executive Agent in the name of the supplier soliciting recommendation for approval.

Keep in mind that no matter what the supplier has the third party do in their name, the supplier is ultimately responsible for the system and the assessment. Whereas, the Government is ultimately responsible for the recommendation of approval.

GOVERNMENT EVALUATION

The days of a totally lead and executed Government Evaluation Review (Demonstration Review) are gone (unless by exception).

The Government's position is that the supplier should take ownership of it's own EVMS from concept to implementation. This includes initial evaluation reviews and submittal of review reports and system description to the cognizant ACO for system compliance and notification to the Executive Agent.

Government Does Evaluation

In spite of the trend toward supplier ownership, there are instances where a Government review could be appropriate:

1. Situations of contractor propriety, where the supplier has limited resource expertise with access to particular contract activity.

2. Situations where the Government is doing a review of particular field activities such as Repair Depots managing activities of multiple suppliers.

3. Suppliers' accepted for the benefit of the Government. This would include such suppliers that may have relatively small contracts that are low in contract value but are high in criticality and represent a high level of risk for the Government.
These are only a few representative candidates for Government review of EVMS. Each system to be considered for review will have to be measured on it's own merit according to the appropriateness of the application.

The Review Process

The review process will be the same regardless of who is conducting the review. A review conducted by the Government, does not provide the review team with any shortcuts or privileges. The review team will still submit the evaluation report to the Executive Agent representative for review and recommendation. If the recommendation is favorable, the ACO still has the responsibility to authenticate the AA through endorsement.

SUBSUPPLIER EVMS EVALUATION PROCESS

The evaluation process for major sub-tier suppliers may be categorized the same as for prime suppliers as defined above depending on the value of the subcontract. But generally, when speaking of sub-tiersuppliers, we are referring to those suppliers, that provide the prime suppliers (with EVMS requirements) with products (that usually fall under the categories of components, parts, sub-assemblies, assemblies, units, sub-sections, sections) and/or comparable services. Products or services considered by the prime supplier or the customer to be significant because of cost, criticality or risk, will require a report of progress relative to cost, schedule, and technical performance. This situation will generally result in a flow down of the EVMS requirement to the sub-tier supplier.

DFARS Requirement

If the subcontract is significant enough for EVMS requirements to be called out in the contract through the DFARS clause, the sub-tier supplier would be expected to meet the same

requirements as the prime supplier. Therefore, the sub-tiersupplier would have the same options as the prime for acceptance.

EVMS Flowdown

However, if the subcontract is considered to be "less significant" and the EVMS requirement is a "flow down" from the prime supplier, the evaluation may be conducted by the sub-tier supplier's method of choice requested through the prime contractor.

The major difference when there is a flow down requirement, is that the sub-tier supplier's system need not necessarily be submitted to the Government for recommendation of approval or acceptance. The evaluation report and the sub-tier suppliers system description may be submitted to the prime supplier to meet their approval. The reason this deviation is recognized is because the prime is ultimately responsible for the validity of the sub-tier suppliers data. Another important difference is that when a prime supplier is the accepting authority for the sub-tier suppliers system acceptance, that acceptance will be valid for <u>that contract only</u>!

The sub-tier supplier has the option of requesting through the prime supplier, that a Government led initial EVMS evaluation review be conducted on it's performance measurement system in order to secure a Government acceptance versus a suppliers acceptance.

SUPPLIER AGREEMENTS

Per DFARS Part 252.234-7000, suppliers with contracts requiring EVMS, shall either: (1) provide documentation that the proposed system has been accepted by DoD or recognized by the cognizant ACO (2) submit a comprehensive plan for compliance with the EVMS Guidelines. Close coordination will be required between the perspective supplier, the buying activity, and DCMA in order to facilitate quick resolution on system acceptance issues.

ADVANCE AGREEMENT

Recognition of the suppliers system should be through the AA. The EVMS Monitor should approach the ACO and the supplier about entering into an AA. The AA is used for:

1) ACO recognition of the supplier's system as complying with the EVMS Guidelines,

2) Documents the current status of the supplier’s commitment to using their recognized EVMS,

3) Serves as a vehicle for granting the supplier the pre-approval waiver for system changes.

The Corporate/Division Administrative Contracting Officer (CACO/DACO), as appropriate, and a supplier representative at the commensurate level shall sign the AA.

Coordination at the system level: Recognizing that suppliers may

propose systems at different levels (facility, division, sector, corporate, etc.) DCMA offices need to coordinate surveillance activities to ensure effort is not duplicated and that the appropriate contracting officer is informed of EVMS implementation.

PRE-APPROVAL WAIVER

The pre-approval waiver for EVMS changes will also be discussed stressing the significance to the supplier as well as the Government.

REQUIREMENTS FOR EVMS CHANGES

The DFARS clause 252-234-7001, requires that a supplier get approval before making any changes to the approved EVM system. This requirement may be waived through the authority granted the ACO. Without the waiver, the supplier may not make any changes to their EVMS without first getting approval through the ACO. With the waiver, the supplier is still required to disclose the changes to the ACO at least two weeks prior to implementation, but the change does not need to be pre-approved. The pre-approval process may serve as a deterrent to some suppliers for considering or making system improvements.

Benefits Both

The pre-approval waiver process provides definite advantages to both parties. The benefits for the supplier are; it makes improvements easier to implement, saves time, and saves money. The benefits for the Government are that; it encourages the supplier to make improvements, requires less involvement on the part of the Government, and provides visibility of changes prior to implementation.

Deserving Bonus

Granting the waiver should not be simply a matter of course because of the AA. The waiver should only be exercised in those cases where the supplier truly deserves the waiver based on the supplier's executed dedication, sincerity, and system maturity. The waiver can be looked at as a bonus for those suppliers that demonstrate continual improvement and reduction of risk associated with their EVM system.

EVMS VALIDATION WITHDRAWAL

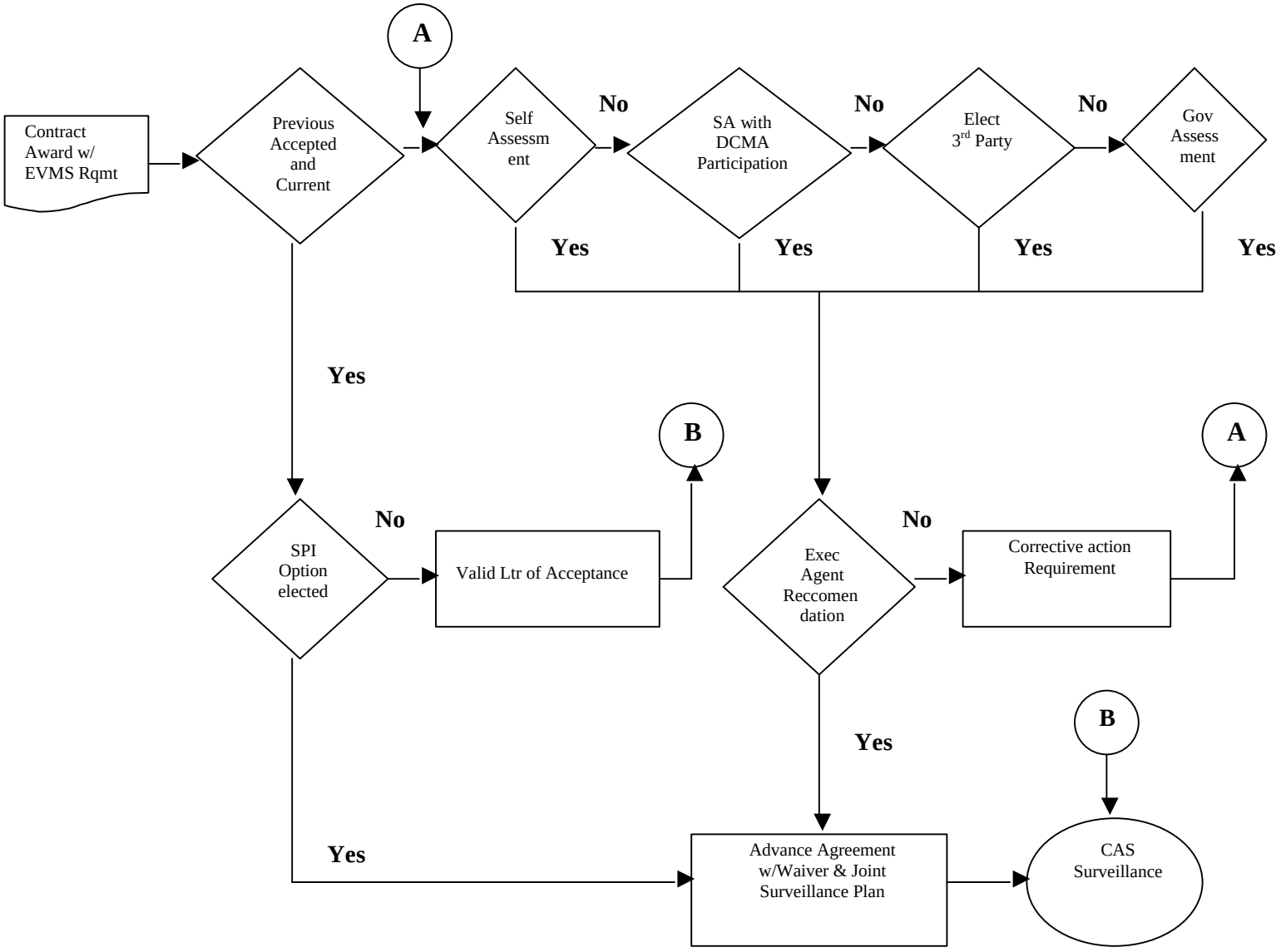
The AA for EVM system acceptance is between the CMO and the supplier. It is the responsibility of the CMO (ACO) to execute the disposition of withdrawal proceedings.

Burden of Proof

When an EVM system problem is identified to the supplier, the burden of proof is on the supplier to demonstrate that the EVM system and its operation does in fact comply with the system as accepted. Its best to try to resolve this kind of issue at the lowest level of effort, but if necessary a "review for cause" or a "compliance review" may be in order.

Notification of Jeopardy	If the supplier is unable to obtain agreement at at the local level, the problem will be elevated through the EVMS Monitor, District EVMS Process Champion, DCMA HQ Process Owner, or the EVMS Center. The supplier will be formally notified through the ACO that the EVM system acceptance is in jeopardy and corrective action must be approved within a specified period of time *i.e.*60 days.
Withdrawal	The CMO will monitor the progress of the suppliers corrective action. If inadequate action is taken by the supplier, the formal acceptance of the management control system AA will, if conditions warrant, be withdrawn by the CMO (ACO) responsible for the acceptance.
Consequence	Withdrawal of the EVMS acceptance and the AA, could result in a broad spectrum of consequences, from minor delays or interuptions of contract activity, to more severe actions *i.e.*loss of award fee, termination of the contract, loss of eligibility to compete for other contracts, and media exposure of intensive investigation. The withdrawal will usually have some detrimental effect on the suppliers award fee. The award fee could be anywhere from a total loss to any fraction thereof depending on the imact on the program. The supplier will lose elegibility to compete for other contracts having EVMS requirements until the AA is reinstated. Termination of the contract is unlikely but can happen. If the system problem was a serious problem involving co-mingling of funds and resources betrween contracts and/or other activities, it's almost sure that some type of investigaton will follow. Any investigation usually gets some media attention. A good surveillance program properly employed and executed jointly between the supplier and the CMO can be the best pre-emptive measure available to prevent the withdrawal of a accepted EVM system.
Withdrawal Procedure	See Appendix A for the withdrawal procedure and a flowchart.

EVMS ACCEPTANCE PROCESS



3b. EVM System Surveillance Guidance

INTRODUCTION

Section 3b is about DCMA EVM system surveillance activities at CMO field activities. Discussed are the steps in planning and performing system surveillance. Understanding the data in the financial reports and the various analytical techniques employed are covered. The automated data analysis programs available for use are described as well as supplier agreements between the supplier and the CMO.

Uniform Guidance

This section provides uniform guidance for all DCMA CMO activities responsible for surveillance of EVMS consistent with the provisions of DFARS 242.302 (41), DoD Instruction 5000.2-R, Appendix VI, EVMS and Section 2 of the Industry Standard, "Earned Value Management Systems Guidelines." Guidance for implementation of EVMS and acceptance of the supplier's management control system is provided in the EVMIG, DLA Handbook 8400.2. DCMA One Book Chapter 3.1.2 Earned Value Management (Supplier Performance Management), provides policy for performing surveillance of a supplier's cost and schedule management control system.

Procedural Guidance

This section contains procedural guidance, which should be utilized for unique surveillance situations as they arise. Details concerning EVMS surveillance of each suppliers management control system should be developed by the CMO EVMS Monitor in an EVMS Surveillance Plan. A MOA when negotiated between the CMO and the PMO describes the activities necessary to achieve and maintain effective program surveillance. Procedures for developing the EVMS portion of the MOA are provided in DLAH 8400.2 Appendix D, EVMIG.

Relationship to EVM Implementation Guide

This surveillance is to be used in conjunction with the EVMIG, which covers the actions leading to the compliance evaluation and acceptance of management control systems which are required to comply with the EVMS. Specifically, the EVM Implementation chapter explains the component relationships and administrative procedures before and during contract performance prior to acceptance of the management control system. It outlines the EVMS evaluation process, including the composition of the evaluation teams, the functions of all involved, and the coordination required. It also discusses the objectives and interpretation of the EVMS and the implementation procedures, including pre-award and contractual actions resulting from the EVMS requirement. Section 3 of the guide describes earned value surveillance implementation actions following contract award.

SURVEILLANCE GUIDANCE

Surveillance Goals:

1. Ensure a supplier's EVMS meets contractual requirements and EVMS data are used for supplier and Government program management. Facilitate responsible supplier ownership of EVMS processes by encouraging suppliers to align EVMS processes with management practices.

2. Perform periodic assessments to evaluate the effectiveness of a supplier's policies and procedures to assure that the supplier's management control system continues to meet the 32 EVMS Guidelines and generates valid data. Scheduling of the evaluations should be accomplished to allow the 32 guidelines to be verified within an annual time frame.

3. Base such assessments on recurring evaluation of internal management control practices and procedures and selective tests of internal and external reported data during the life of the contract.

4. Development of EVMS surveillance of a supplier's management control system requires active coordination among EVMS stakeholders. These include: the supplier, the CMO, DCAA, and the cognizant PMO. Program Integrators (PIs), PST members, and support CMO's provide additional support through assessment of a supplier's functional disciplines.

EVM SYSTEM SURVEILLANCE RESPONSIBILITY

EVMS surveillance involves management control, system discipline, and data verification. Basically, this requires evaluating the operation of a supplier's management control system, to assure that the supplier--

- Manages the contract, using a management control system that meets the EVMS as described in written procedures, and as demonstrated to the EVMS evaluation team,

- Provides continuous, timely, consistent, and accurate summary level data emanating from that management control system in reports to the Government.

Contract Administration Office

In accordance with DOD FAR Supplement 42.302 (41), the cognizant CMO is responsible for--

- Performing post-award surveillance of supplier progress toward demonstrating that the management control system meets the EVMS.

- Providing assistance in the evaluating and acceptance of the supplier's management control system.

- Performing post-acceptance surveillance to insure continuing operation of the supplier's accepted management control system.

DCAA Field Audit Office (FAO)

DOD Directive 5105.36 assigns the DCAA FAO responsibilities directly related to EVMS Surveillance. The DCAA FAO has the following responsibilities:

- Reviewing the supplier's accounting system for compliance with the EVMS Guidelines.
- Verifying consistency with the budgeting and work authorization systems.
- Determining the accuracy and reliability of the financial data contained in the contract cost reports prepared from the supplier's systems.
- Reporting any significant unresolved deficiencies to the EVM Monitor.
- Incorporating the appropriate EVMS surveillance requirements into routine audit programs and procedures.

As a customer of DCAA, the CMO, specifically the ACO should initiate a request for Audit with a letter to the Auditor in Charge at the FAO outlining the specific audits needed. The FAO will issue an acknowledgment letter in a timely manner in response to requests for audit services.

For a detailed description on the services DCAA can perform in support of EVMS can be found in the DCAA Contract Audit Manual DCAAM 7640.1, Vol. 2; Jan 2000, Chapter 11, Sections 2 and 3. http://www.dcaa.mil/ Chapter 11 can be found by selecting DCAA Publications, then DCAA Contract Audit Manual.

Concept of System Surveillance

EVM surveillance begins with the award of the contract, continues through system evaluation and acceptance, and extends throughout the duration of the contract. Familiarization with the supplier's management control system should begin during the contract proposal stage. The EVMS surveillance plan should be formulated by the CMO during early CAS and fully implemented after contract award. This guide contains information on preparation of the surveillance plan and on conduct of surveillance operations. EVMS surveillance of the supplier's system is to be accomplished by qualified individuals from the

cognizant CMO in accordance with the succeeding chapters of this guide. System surveillance is the responsibility of a member of the CAO who is designated as the EVMS Monitor.

Scope of System Surveillance

EVMS surveillance consists of:

1. Complies with the EVMS guidelines and contractual requirements.

2. Understanding the supplier's internal management control system.

3. Monitoring the supplier's implementation of the management control system on the applicable contract.

4. Providing timely indications of actual or potential problems.

5. Participating in initial compliance evaluations, post acceptance reviews for cause, and monitoring the supplier's corrective action following each of these activities to bring the supplier's management control system into compliance with the guidelines.

6. Monitoring throughout the life of the contract the continuity, consistency, reliability, and effectiveness of the system in operation. This function includes the following:

(a) Assuring that the accepted system is in fact being used in the management of the program.

(b) Evaluating changes to the accepted system to assure continuing compliance with the guidelines.

(c) Conducting periodic system evaluations and testing to insure that the quality of the accepted management control system is maintained.

(d) Informing the supplier and the procuring activity of any uncorrected deficiencies which affect overall acceptability of the supplier's management control system, and requesting that corrective action be initiated.

(e) Assuring that the supplier-prepared reports (internal and external) identify current and potential problems.

(f) Monitoring the supplier's corrective actions required as a result of EVMS surveillance.

ADMINISTRATIVE ASPECTS

This section is devoted to a discussion of the relationships that exist between the various DCMA components during the surveillance of suppliers' management control systems and describes those administrative procedures applicable to the surveillance effort.

DCMA Component Relationships

The responsibilities of the various DCMA components and procedures applicable to the implementation of the guidelines are explained in the EVMIG.

Coordination of Surveillance

The CMO and DCAA offices will participate in reviews of the supplier's management control system, will perform required surveillance, and will report to the PM and/or the Procurement Contracting Officer (PCO) via the CMO or ACO as appropriate. The focal points for EVMS surveillance guidance are responsible for providing general guidance regarding surveillance, conducting EVMS staff assistance visits, and maintaining liaison with the other focal points on matters related to EVMS surveillance

MEMORANDUM OF AGREEMENT

The purpose of the MOA is to assure that all participants understand their responsibilities in the surveillance program. For this reason, it is necessary that a MOA be achieved between the cognizant CMO and the program office (or between the CMO's involved when a support delegation letter is issued). The provisions of the MOA will vary depending upon such circumstances as military department involved, CMO resources, and the desires of the PM. There should be no unnecessary duplication of responsibilities and functions and, of more importance, the MOA should assure that all major aspects of the program are covered and responsibilities assigned. The MOA should be developed in conjunction with the surveillance plan. The MOA will be submitted by the cognizant ACO to the PM for approval and formal agreement. This MOA should be signed before or immediately after the completion of an acceptance evaluation or IBR. If neither the PM or ACO object, an information copy of the MOA should be provided to the supplier. The MOA should also provide a means for resolving problems and promoting better communications. The ACO will coordinate with DCAA prior to accomplishment of the MOA

Surveillance Plan

The surveillance plan augments the MOA. It is the plan that describes how the CMO with DCAA participation will carry out the EVMS surveillance responsibilities as agreed to in the MOA. Development of the plan may be discussed with the supplier, and if the ACO has no objection, a copy of the plan may be provided to the supplier. This plan should be submitted to the PM and procuring activity for concurrence and should be implemented as

soon as possible after an acceptance evaluation.

Applicability

A separate MOA normally will be executed for each program where EVMS is invoked, even though a reapplication of a previously accepted management control system is intended. If there is more than one contract within a particular program at the same supplier's facility, one MOA and one surveillance plan may be sufficient. If there is more than one program at a supplier's facility, separate MOAs are required for each contract.

Pre Approval Waiver

Pre-approval waivers for system changes can only be granted by the contracting officer cognizant over the supplier's EVMS as described in the EVMS DFARS Clause 252.234-7001. Before granting the Pre-Approval Waiver, the contracting officer should consider the following:
- Suppliers use of EVMS at the facility
- Supplier's commitment to EVMS controls and continued innovation
- Customer feedback on the supplier's application of EVMS across programs at the facility.

Where the supplier demonstrates that EVMS is implemented as a management tool (not only where required by contract), including EVMS controls, then the contracting officer would consider granting the Pre-Approval Waiver for system changes.

3c. EVM System Surveillance

INTRODUCTION

The prime responsibility for maintaining system discipline rests with each supplier. Supplier personnel must assure that the management control system continues to function as accepted and that any changes or deviations thereto are properly documented, and processed in accordance with paragraph 2-3. The degree of supplier surveillance activity will have a direct bearing on the intensity of the Government surveillance effort. The adequacy of the supplier's system discipline is one of the important areas to be evaluated by Government personnel.

Requirement

By performing the various reconciliations, analyses, and traceability tests described in the previous pages, surveillance personnel should be able to determine whether:

(1) The supplier's system has integrity and reliability.

(2) Management uses and relies on the accepted

management control system.

(3) The supplier's system is properly controlled and resulting data are properly employed by appropriate levels of management.

Technique

(1) In order to assure that the supplier has a management control system which has good system discipline, trace errors discovered in tests described above to their source for correction. Errors discovered may be caused by:

(a) Mathematical inaccuracies.

(b) Management control system deficiency that prevented reconciliation or permitted the same data to be accumulated from two or more separate sources.

(c) Personnel not properly trained in the use of the management control system.

(d) Failure to take necessary management actions.

(e) Lack of internal control.

(2) Bring the problems resulting from these deficiencies to the supplier's attention for prompt resolution.

EVMS COMPLIANCE AFTER ACCEPTANCE

After evaluation and acceptance of a supplier's management control system, the system description document is updated to reflect the accepted management control system and becomes a part of the contract. The supplier is then contractually obligated to maintain the management control system in accordance with the accepted system description. Acceptance of the supplier's management control system as meeting the guidelines is not intended to inhibit continuing innovations and improvement of the management control system.

Supplier proposed Changes

The surveillance effort must consider changes and improvements that the supplier may wish to make to his accepted management control system. Such requests for changes should be promptly evaluated for compliance with the EVMS. The proposed changes will be submitted by the supplier to the cognizant ACO for approval in accordance with the contract terms and delegation of authority. The ACO should advise the supplier of the acceptability of such proposed changes within 60 days after receipt from the supplier. A copy of the accepted change to the

system will be forwarded to the procuring activity and the EVMS Monitor.

Deviation From Accepted System

Unless a Pre-Approval Waiver is granted by the cognizant ACO, supplier proposed EVMS changes require approval by the cognizant ACO prior to implementation. The changes will be analyzed and, if necessary, the ACO should require a Corrective Action Request (CAR) to be written.

If deficiencies are discovered in the supplier's compliance with the accepted management control system, they will be identified as system deficiencies to differentiate them from program problems. The supplier will be advised of the system deficiencies by the EVMS Monitor. The observing PST member or auditor will document the event and report to the EVMS Monitor the corrective action being taken. The PST member or auditor will follow up on a timely basis to determine when action taken resolves each discrepancy, and will advise the EVMS Monitor accordingly. System deficiencies that cannot be resolved promptly with the supplier by the surveillance personnel will be reported to the ACO for corrective action.

When Accepted System Does not Meet EVMS

Suppliers' management systems should be in compliance with the EVMS Guidelines when accepted by DCMA. In those instances when surveillance personnel determine that the supplier's accepted management system is not meeting the EVMS, the EVMS Process Champion, HQ, and the EVMS Center should be promptly notified. The information provided should detail the specific areas of deviation. In addition, the procuring activity and EVMS Executive Agent should be notified of major discrepancies and advice should be sought from all parties

Training

All individuals involved or likely to become involved with EVMS surveillance should receive specialized training dealing with management control systems concepts, cost performance measurement requirements, interpretation of EVMS, surveillance of management control systems, and analysis of earned value data at the earliest practical date. There are four recognized sources of training: formal training classes (DSMC, DAU, etc.); DCMA in-house training; informal, on-the-job training and supplier sponsored training.

3d. Risk Based Management

INTRODUCTION

EVMS information is a PMs' tool for risk identification and tracking. EVMS surveillance ensures the Government PM that EVMS information is a reliable and accurate basis for decision making. Surveillance will ensure information integrity by ensuring the supplier maintains and uses their compliant EVMS.

This section advocates a risk based surveillance approach. Critical to a risk based surveillance approach is a definition of risk. From the Performance Based Business Environment RISK MANAGEMENT guidebook:

Risk is the measure of the inability to achieve objectives.
Risk has two components,

- The probability (or likelihood) of failing, and
- The consequence of failing.

Failure to account for the severity of the consequences means that risks may be misstated.

This section uses this definition to provide all EVMS users within DCMA with guidance relative to EVMS "system" and "program" risk surveillance activities.

DCMA Metrics

The top level metrics for this process are: **Right Time**, with a feeder metric of Schedule Slippages on Major Programs (3.12.2.1), and **Right Price**, with a feeder metric of Cost Overruns on Major Programs (3.12.1.4)**.** Schedule Slippages and Cost Overruns on Major Programs work together to provide insight into CMO, supplier, Government Buying Offices and Government PMO optimization of business practices. Process drivers (Figure 1) are the same for both Schedule Slippages on Major Programs and Cost Overruns on Major Programs. The drivers are the initial look at what may cause a schedule slip or cost overrun on a major program. As these metrics are baselined the validity of the drivers, the "Relative Impact on Top Level Metric" and the "Relative Degree of Influence/Control" will be reviewed. Numbers for "Relative Degree of Influence/Control" are predicated on those areas DCMA has functional assets in place to address a Process Driver.

Process Drivers	Relative Impact on Top Level Metric	Relative Degree of Influence/Control
EVMS used in Program Management	10	10
Software Intensive	7	7
Subcontract Management	7	7
Non-Conforming Material	7	7

Decline in Business Base	7	4
Contract Funding	7	4
Firm Requirements	7	4
GFE/COTs (Availability/Suitability)	7	4
Inherent Technical Risk	8	3
Facility Issues; Strikes Mergers	7	3
Other	-	-

Figure 1: EVMS Metrics Process Drivers

The focus of EVMS system surveillance is to ensure effective use of EVMS to manage contracts. The question of use can only be addressed from looking at program application. The EVMS Monitor needs to have in-depth knowledge of the supplier's system, this includes the appropriate areas of program execution that can be used to assess "use". PST and Government PM feedback will be a primary input to system surveillance. Other inputs should include:

- EVMS risk assessments
- results from supplier internal assessments
- system changes
- results of related system reviews

EVMS Risk Assessment: EVMS system surveillance will result in the CMO determining the level of risk to the Government in relying on the supplier's EVMS. The following definitions for EVMS system risk could be used:

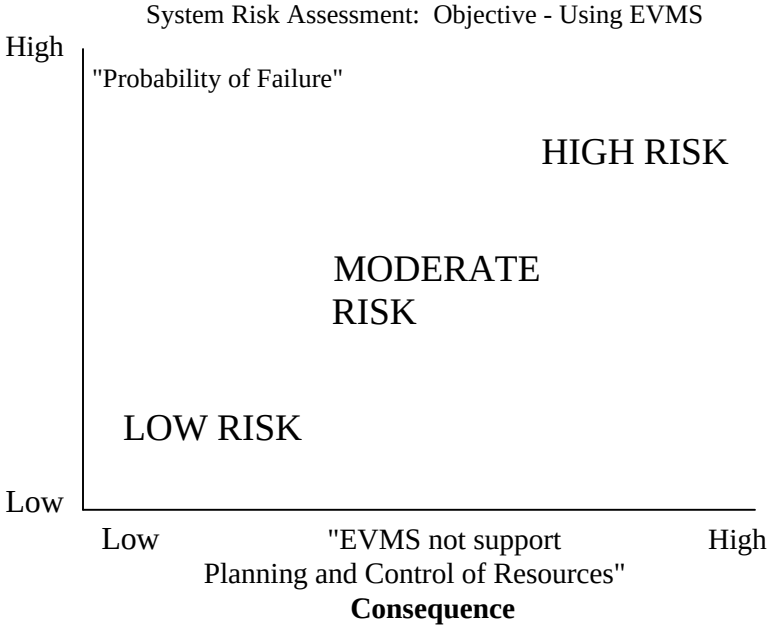


Figure 2: Matrix for EVM System Level Risk Assessment

EVM SYSTEM RISK

Use the matrix in Figure 2 to help assess the EVMS system risk. First, identify specific elements that cause the system not to be used in management of programs. Second, quantify those elements in terms of impact on planning and control of resources. Only elements that cause the system not to be used as a program management tool and have associated impact that would prevent planning and control of resources can be classified as high risk.

Assessment of system risk is an important element in evaluating the level of surveillance activity that needs to take place at a facility. Systems designated as HIGH RISK should have the specific issues documented with program impact quantified and may require elevation to the Management Council to focus management attention to resolve issues. The goal of surveillance for HIGH RISK systems should be to move the system assessment to LOW RISK.

Systems designated as MODERATE RISK should have documentation of specific issues (processes, training, planning...) that have demonstrated they do not support program insight and analysis. An example may be material actual costs that lag performance measurement causing large distortions in cost variances. Again, the goal is to adjudicate the risk and move the system assessment to LOW RISK.

Systems designated as LOW RISK should require less surveillance activity and may rely on the supplier to maintain system level surveillance while DCMA concentrates efforts on program surveillance.

Possible indicators of system not being used:
- Supplier does not hold integrated cost, schedule, and technical reviews.
- Supplier does not have internal controls or maintain training.
- Supplier does not use EVMS at all levels of management.
- Supplier is not proactive in EVMS process improvements.
- Supplier does not integrate EVMS into an overall risk management process.
- Supplier PM and CAMs do not demonstrate EVMS ownership.
- Government PM has not “bought into” the use of EVMS as a management tool.

EVM PROGRAM RISK

A risk assessment should be done to assess risk associated with the implementation of EVMS on a particular program. **The focus of EVMS program surveillance is to determine that the supplier is adequately planning and controlling resources.** The EVMS Monitor can assist in program level assessments, but the primary purpose of EVMS information is to assist the PST in making overall program risk assessments. Therefore, the primary source of data for an EVMS risk assessment at the program level

will be the PST members.

STOP LIGHT REPORTING (Program & System)

Stop Light Reporting will utilize a Green, Yellow, Red, or Blue rating for each of the areas listed below and in accordance with the risk definitions provided below:

- Very Low/ Minimum Risk (Blue): Very low potential to cause disruption of schedule, increases in cost and/or degradation of performance. Requires minimum supplier management effort and very minimum or infrequent Government surveillance.

- Low (Green): There is some evidence that an element of risk has been identified in the factor areas that could potentially impact cost, schedule, or performance. However, normal management attention is required to correct problems to prevent an impact. Management is aware of these issues and is addressing the problem. May require a corrective action plan to be put in place.

- Medium (Yellow) There is a high probability that an adverse impact will occur which threatens schedule, performance or cost unless significant management emphasis and activities are directed at correcting the problem in a timely manner. Requires a corrective action plan.

- High (Red) There is a definite or high probability that the problem will result in a substantial adverse impact to the program, even with intensive management attention. Either program schedule, performance, or cost will be adversely impacted. Requires a corrective action plan and possibly a Bellringer Report http://www.DCMA.hq.dla.mil/onebook/2.0/2.1/ProgInt.htm.bak

Use the matrix in Figure 3 to help assess the EVMS program risk. First, identify specific elements that cause the program not to have planning and control of resources. Second, quantify those elements in terms of impact on EVMS information being valid for program management. Only elements that cause the program not to plan and control resources and have associated impact that would prevent EVMS information from being valid for program management decision can be classified as high risk.

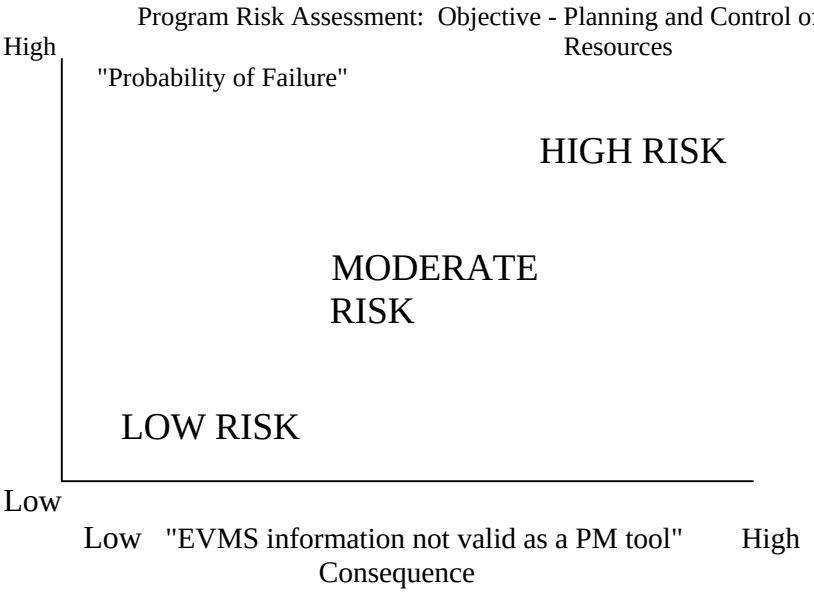


Figure 3: EVMS Program Risk Assessment Matrix

Assessment of program risk is an important element in evaluating the level of surveillance activity that needs to take place on the program. Programs designated as HIGH RISK should have the specific issues documented with program impact quantified and may require elevation to the system level to focus management attention to resolve issues. The goal of surveillance for HIGH RISK programs should be to mitigate the system assessment to LOW RISK.

Programs designated as MODERATE RISK should have documentation of specific issues (processes, training, planning...) that have demonstrated they do not support program insight and analysis. An example may be the scope of work not defined and causing a delay in detailed planning. Again, the goal is to adjudicate risk and mitigate the program assessment to LOW RISK.

Programs designated as LOW RISK should require less surveillance activity and may rely on the supplier to maintain program level surveillance while DCMA concentrates efforts on other program areas.

Possible indicators of program not having appropriate planning and control of resources:

- Program not following the EVMS procedures.
- Program findings from the IBR.
- Program not having integrated schedules.
- Program not integrating subcontract data into resource planning and control (i.e. subcontract CPRs or C/SSRs).
- Program EAC reviews determine the EAC to be drastically different than previous EACs.
- Program planning not performed timely.
- Program schedules not updated, constantly show negative float, are not integrated, etc.
- Program controls for budget, management reserve and undistributed budget not tied to technical effort and schedule constraints.
- Control Accounts not detailed enough to facilitate analysis and risk identification.
- Variance analysis reports not communicating problem, cause, impact & corrective action.

3e. EVMS Surveillance Records and Reports

INTRODUCTION

The EVMS Monitor will assure that the results of surveillance program efforts are documented and maintained as part of a chronological record of the contract. A surveillance file will be established to contain all pertinent data and information regarding the surveillance program to include both system and program surveillance effort. The file should include areas reviewed, findings, actions taken, and results.

EVMS Reports

The MOA should identify all desired EVMS surveillance reports, their frequency, distribution, and general content. These reports should encompass the findings of the entire surveillance team, and an evaluation of appropriate supplier-prepared reports. It may also require special reports, such as problem analysis reports, if desired. Reports submitted by the EVMS Monitor to the procuring activity will present the findings resulting from the surveillance activities by the CMO/PST. This report is not intended to be a duplication of the data contained in the CPR or C/SSR submitted by the supplier. It will be used to apprise the procuring activity's program management personnel of the supplier's degree of conformance to the accepted management control system, the occurrence of deviations from that system, and the underlying reasons for the performance variances along with proposed corrective actions. EVMS surveillance reports should normally be forwarded by the ACO to the PM with a copy to the PCO. Additional distribution should be specified in the MOA. Providing the supplier a copy of each surveillance report should improve the supplier's understanding of areas of concern and thereby facilitate system improvements.

Contract Administration Office Reports

The EVMS Monitor should prepare a periodic (as required in the MOA or Letter of Delegation LOD) report of their EVMS surveillance activities and results. The overall report should include an intact copy of appropriate DCAA audit reports which contain reported deficiencies or recommendations pertaining to EVMS surveillance. Whenever significant findings or observations have been made by the EVMS Monitor, a copy of the report will be forwarded to the PM for information, guidance, or action. Although a thorough evaluation of the supplier's monthly CPR or similar reports may not be required, sufficient sampling of significant data items should be evaluated to assure data prepared by the supplier are timely, are accurate**,** and reflect the actual conditions. A statement and comments relative to the above should be submitted to the PM in sufficient time to be of value to the PM during the analysis of the supplier's monthly CPR.

DCAA Reports

Reports should provide clear statements of the scope of review and any deficiencies noted, together with recommendations for

their correction. Comments should also be provided regarding the results of discussions with the supplier's representative on deficiencies disclosed. The report should be forwarded to the local CMO with sufficient copies for further distribution. To insure that all pertinent data have been considered, the audit findings and recommendations should be discussed with the ACO, and the supplier when appropriate, prior to issuance of the report. There may be instances where issuance of a formal audit report will not be necessary. Recognizing that EVMS surveillance is a continuing process, there should be frequent contact between program office personnel, CMO personnel, and the auditor on questions or situations that may be readily resolved. Verbal advice supported by a memorandum may suffice in these instances.

Chapter 4

PROGRAM SURVEILLANCE

4a. EVM Program Responsibilities

INTRODUCTION

EVMS does not obviate any of the techniques, functions, or responsibilities normally accomplished by the CMO. However, it does facilitate the use of the more classical methods of contract administration. For example, the monthly CPR, which shows the cost/schedule status of the contract for the previous monthly report period, highlights significant cost/schedule variances that have occurred and their probable causes. The data in the CPR quantify the magnitude of existing problems and potential problems and indicate cost/schedule trends which are used for estimating contract completion costs. Reliable data in this format are very useful for effective contract administration as well as program management decision-making.

Concept of Program Surveillance

EVM program surveillance of supplier data emanating from that system is to be accomplished by qualified individuals from the cognizant CMO in accordance with the succeeding chapters of this guide. Program surveillance is the responsibility of the PI, and is assisted by personnel from the functional divisions known as the PST.

Objectives of Program Surveillance

The objectives are:

1. Provide timely and reliable cost, schedule, and technical performance measurement information summarized directly from the supplier's internal management system.

2. Complies with the EVMS Guidelines and contractual requirements

3. Provide timely indications of actual or potential problems.

4. Reviewing, evaluating, and processing external supplier performance measurement reports.

5. Maintain baseline integrity.

6. Provide information that depicts actual conditions and trends.

7. Provide comprehensive variance analysis at the appropriate levels including proposed corrective action in regard to cost, schedule, technical, and other problem areas.

Program Manager

The responsibilities of the PM in connection with EVMS surveillance include the following:

- Negotiation of the MOA with the CMO.

- Keeping the CMO informed relative to actions and matters which could affect EVMS surveillance.
- Keeping the MOA current, to assure that the extent of desired EVMS surveillance is known, and that the CMO is aware of the amount of report analysis desired.

- Assisting in resolution of problems cited in EVMS reports by providing required support to EVMS Monitor.

- Apprising the ACO and the EVMS Monitor of the adequacy and usefulness of the surveillance reports, and where necessary, stating required changes to reporting practices.

Contract Surveillance Relationship to EVMS Surveillance

EVMS surveillance is one of the functions performed by the CMO as part of total contract administration. In consonance with inherent CMO responsibilities, as stated in FAR 42.302(a) (4) evaluation of proposals; (15) assurance of notification of overrun or underrun; (31) production support, surveillance and status reporting; (40) engineering assessment of compliance with contractual terms for schedule, cost, and technical performance of design, development, and production; (41) evaluation of the allocation of engineering resources; the CMO is responsible for providing contract status assessments to the procuring activity.

Contract status is provided to the procuring activity by the supplier through reports specified in the CDRL. These reports are developed using cost and schedule data from the supplier's internal management control system. In assessing such reports, both internal and external, it should be recognized that the information they contain is only a portion of the total CMO visibility.

Many PMs desire the CMO to do independent contract assessment including trend analysis. Where the program manager desires such an assessment and the CMO agrees to perform the service, the responsibilities of each party should be clearly spelled out in the MOA to avoid unnecessary duplication of effort. In developing comments to the PM on the validity of the supplier's cost and schedule reports, the EVMS Monitor should assure consistency with all information available to the CMO relative to current and potential problems impacting upon program cost and/or progress. To the extent called for in the MOA, the CMO responsibility for contract administration includes providing the PMs and procuring activities with evaluation of required reports,

contract cost performance, and any current or potential problems, their impact, and what corrective action has been taken by supplier management.

Administrative Contracting Officer

The ACO assigned to each contract acts as the CMO contact with the project manager, PCO, DCAA, and the supplier. The ACO is an individual designated as the agent of the Government responsible for assuring that the provisions of the contract are complied with, and as such, must be kept apprised of the cost/schedule performance, as well as compliance with EVMS provisions of the contract.

Program Integrator (PI)

PIs are assigned to lead PSTs and serve on IPTs and direct the efforts of PST members assigned to working level IPTs. The PI is responsible for the development, execution, and maintenance of the integrated surveillance plan. The PI and PST are responsible for the surveillance of the supplier's earned value methods applied to each program and assuring that the CMO executes a MOA. The PI also prepares and submits monthly reports to the PM that include results of the PST efforts on the status of the supplier's EVMS.

EVMS Monitor Selection

Because EVM surveillance requires the participation of the varied expertise of the CMO, e.g., industrial specialists, engineers, quality assurance specialists, overhead specialists, price analysts, contract specialists, it is necessary that a single individual be assigned the overall responsibility for the coordination and accomplishment of the total EVM surveillance program within the CMO. This individual is the EVMS Monitor and is selected on the basis of background and knowledge. The EVM Monitor should also possess the ability to relate contract and program performance and assure that the data presented by the supplier to the Government are accurate, timely, and consistent with the supplier's internal data

Duties

The EVMS Monitor has the following responsibilities:

- Assuring that the supplier begins formal implementation of an EVMS compliant system immediately after contract award. The comprehensive plan submitted in response to the RFP should be the basis for these initial efforts.

- Assuring CMO coordination with DCAA in the preparation of surveillance plans to assure that the surveillance is performed in a systematic manner.

- Executing a program of EVMS surveillance to assess continuity and consistency in the operation of the supplier's

accepted management control system.

- Performing (i) recurring evaluations of the effectiveness of the supplier's policies and procedures, and (ii) selective tests of the supplier's cost and schedule data flow and external performance measurement reports to determine validity of reported data.

- Assuring that the cost, schedule, and contract-related financial and program status reports submitted to the program office are timely and accurate, and depict actual conditions.

- Calling upon the PST to assist in accomplishing the CMO EVM surveillance plan.

- Assuring accurate and adequate files are maintained relative to EVMS surveillance matters.

- Acting as the point of contact in matters relative to cost and schedule control surveillance within the CMO.

- Assuring that the CMO Commander and ACO are fully advised of status of cost and schedule control surveillance and any major problems pertaining thereto.

- Preparing and submitting surveillance reports in accordance with the requirements of the MOA and this Guidebook.

Planning

Periodically, normally monthly, the EVMS Monitor should meet with the PST to discuss items of interest and concern from the previous surveillance effort; to plan future surveillance effort; and to draft, discuss, or review the surveillance report. The EVMS Monitor will solicit the views of the team and will determine the scope, depth, and areas of surveillance activities for the subsequent period. Specific actions will be assigned to the team members as may be required in preparation for the current surveillance efforts. The intent is to effectively examine the supplier's complete system at least once during a 12-month period. This will require: (i) evaluating all the important features and disciplines of the supplier's accepted management systems; (ii) performing this evaluation in each involved major functional group of the supplier's organization; and (iii) performing this evaluation in the most active areas of the WBS.

Working Relationships

The full cooperation of all PST personnel is imperative if surveillance is to be effective. Each person involved in surveillance should have an understanding of the intended evaluation methods of the other PST members. Periodic discussions and the exchange of ideas should be encouraged and

joint evaluations made in areas of joint responsibility to the extent it appears they will be productive. The following five paragraphs are intended to indicate which of the specialists will normally have responsibility for various aspects of surveillance. This is not intended to preclude the involvement of other personnel in that area since local situations may dictate some adjustments as a matter of practicability.

CMO CONTRACT ADMINISTRATION

This organization normally has the following responsibilities:

- Evaluating, with the local or resident DCAA office, the cost performance measurement reports required by the contract to insure that the data actually are traceable to the supplier's management control system.
- Forwarding to the local or resident DCAA office a list of all cost performance measurement reports, and related reports, submitted in response to the (DD Form 1423), and which require audit verification of financial data.
- Reviewing contract cost and financial data.
- Evaluating the effectiveness of the supplier's procedures for controlling changes, management reserve, and undistributed budget.

CMO Production Operations Organization

This organization normally has the following responsibilities:

- Evaluating the supplier's scheduling/manufacturing controls and techniques.
- Evaluating cost/schedule performance variances that exceed the limits established in the EVMS.
- Reviewing and evaluating the supplier's material control system.
- Performing recurring evaluation of the scheduling system and manufacturing control system.
- Coordinating with other CMO divisions, procuring activities, etc. to resolve problems within the purview of the production/manufacturing operations responsibility.

CMO Engineering Organization

This organization normally has the following responsibilities:

- Making periodic surveys of the supplier's engineering management system.

- Evaluating the supplier's engineering controls and techniques.
- Evaluating cost/schedule performance variances that exceed the limits established in the supplier's EVMS
- Performing recurring evaluations of the scheduling system and engineering management system.
- Coordinating with other CMO divisions, procuring activities, etc. to resolve problems within the purview of the engineering responsibility.

CMO Quality Assurance Organization

This organization normally has the following responsibilities:

- Evaluating the supplier's quality assurance inspection procedures, controls and techniques.
- Assessing performance deficiencies against requirements of the supplier's quality and reliability assurance program to ascertain causes, cost and schedule impact, and corrective actions.
- Making periodic surveys of the supplier's cost and schedule control system in conjunction with other CMO divisions.
- Coordinating with other CMO divisions, procuring activities, etc. to resolve problems within the purview of the quality assurance responsibility.

PROGRAM INTEGRATOR / PROGRAM SUPPORT TEAM

The PI and the PST are key members of the overall CMO EVMS surveillance effort. The PI as the leader acts as the focal point for the efforts of the team.

Planning And Performaing Surveillance

This section discusses the surveillance function, and provides guidance for the development of realistic surveillance plans and the evaluation of suppliers' management control systems.

Surveillance Planning

With the commencement of contract performance, suppliers are expected to implement a management control system to comply with the EVMS contractual clause. Planning for surveillance should begin as soon as it is anticipated that a contract will be awarded. Active surveillance should commence immediately after contract award to ensure that management control system implementation is satisfactory and to highlight any obvious system deficiencies. Continuing surveillance should be directed toward all procedures and functions of the supplier's cost and schedule control system. From immediately after contract award, through all phases of system implementation and evaluation, and

until system acceptance, activity should be devoted to gaining a full understanding of the supplier's management control system, to monitoring the implementation of EVMS, and to planning and developing the comprehensive surveillance plan. Prior to or immediately after the completion of the Initial Compliance Evaluation or IBR, a MOA should be executed between the cognizant CMO and the PM (or between the CMOs involved when a support delegation letter is issued). The MOA, in conjunction with the surveillance plan, defines the surveillance to be performed.

THE SYSTEM SURVEILLANCE PLAN

Purpose and Content

Because the EVMS does not prescribe a specific management control system, each CMO will be monitoring a unique system consisting of different scheduling, budgeting, cost accumulation, etc. subsystems. The main purpose of the surveillance plan is to provide an organized and comprehensive set of guidelines and techniques for use by cognizant CMO personnel in performing EVMS surveillance on the management control system. Where suppliers have a demonstrated commitment to using EVMS data, EVMS processes shall be maintained as a useful management tool. The following should be prime considerations in the design of the surveillance plan:

System Surveillance

The level and degree of system surveillance activity shall be tailored to:

- Risk, associated with supplier management practices differing from EVMS processes
- Supplier internal EVMS surveillance
- Supplier willingness to participate in joint (DCMA-contractor) surveillance
- Government PM concerns

Program Surveillance

The PST with the assistance from the EVMS Monitor shall integrate EVMS data into an overall program risk assessment plan per One book Chapter 5.1.4. EVMS data shall be analyzed and used to update or modify the initial program risk assessment.

Surveillance functions defined in FAR 42.3 and DoD FAR Supplement 42.302 may be added to the surveillance plan and reflected in the MOA when agreed upon by the CMO and the PM.

The surveillance plan will normally consist of two basic sections,

one devoted to general guidance and management responsibilities, and one devoted to specific procedures and techniques. The first section should describe organization responsibilities, reference documents, frequency of reports, the review cycle and other general administrative information. The second section should outline and discuss techniques of accomplishing surveillance, tests to be used, areas to be evaluated, and functional skills within the CMO to be used. The plan should indicate the auditor's responsibility to review the supplier's financial management system and perform other surveillance activities as required by agency directives.

The surveillance plan should require, as a minimum, that during the course of each 12-month period such reviews are made as to assure that the accepted system is being maintained in accordance with the EVMS. The surveillance plan should contain procedures for conduct of surveillance throughout the life of the contract. However, the plan should not be so rigid as to result in routine mechanical reviews. Instead it should be flexible and require periodic reevaluations to determine redirection of emphasis necessary to meet changing conditions. It should provide for adjustment in effort and shift of emphasis as the program progresses and as familiarity with and confidence in the supplier's management control system is gained.

CONSIDERATIONS IN DEVELOPING THE PLAN

Supplier Management Control System

A detailed knowledge of the supplier's management control system, subsystems, policies, procedures, etc. is the necessary starting point in the development of an effective surveillance plan. Specifically their interrelationships, dependencies, and control points must be understood by the EVMS Monitor.

Initial Compliance Evaluation Report

The Initial Compliance Evaluation report is an excellent source of information concerning how and under what conditions the supplier's management control system was accepted. This report presents a summary of the overall condition of the supplier's management system and highlights areas requiring surveillance emphasis at the time of the compliance evaluation. Therefore, the Compliance Evaluation Report, coupled with the monitor's evaluation of the management control systems, should be used to assist in the construction of a surveillance plan which covers all areas. The IBR final report is also a good source for information during construction of the surveillance plan.

Program Manager Requirements

The surveillance plan should support the PM's needs and avoid duplication of effort. The CMO and PM representatives establish a mutual understanding in the MOA as to their respective responsibilities, and the surveillance plan should be written, or

amended as necessary, to satisfy these requirements. For example, if the CMO is to support the PM with analysis of contract progress, the surveillance plan must be developed around a functional and financial approach. If, however, the CMO is limited mainly to system surveillance, the plan should be oriented to system discipline and data verification.

Reports and other Documents

There are a number of reports generated by both supplier and Government representatives in carrying out total contract performance and administration, respectively. Items such as appropriate financial plans and budgets, engineering and manufacturing status reports, test results, and manpower projections should prove invaluable for the surveillance personnel as additional sources of information. The EVMS Monitor and auditor should consider such sources and the associated information in developing the surveillance plan.

Management Support and Available Manpower

In developing or revising the MOA and the surveillance plan, the CMO should assure that both are kept within the bounds of the responsibilities, manpower, expertise, capabilities, and resources available. The number of people and functional expertise required will vary based on the scope of the contract, and the characteristics peculiar to the supplier and program.

PERFORMING EVMS SURVEILLANCE DURING PRE-AWARD PHASE

Since program decisions must be made from the day of contract award, contract administration including EVMS surveillance, must also begin upon contract award, to assure the DoD procuring activity that the provisions of the contract are being met despite the fact that the supplier's management control system has not yet been reviewed or evaluated and found acceptable

a. During early CAS, the cognizant CMO/DCAA personnel should become thoroughly familiar with the supplier's management control system and monitor the supplier's implementation of the system.

b. In examining the supplier's management control and its outputs during early CAS, surveillance personnel should emphasize analysis of the system's characteristics and identification of features not meeting the EVMS.

c. In those cases where management control system acceptance is delayed for an extended period of time after contract award, EVMS surveillance should shift towards post acceptance activities. When dealing with data and reports from an unaccepted (or unacceptable) supplier management control system, emphasis should be placed on the necessity for data verification and on assuring consistency between status/cost information and information from other sources of CMO/DCAA visibility.

POST AWARD SURVEILLANCE

Post award surveillance should ensure that the supplier's management control system continues to meet the objectives stated in paragraph 1-4. During the post award phase, surveillance personnel should concentrate their activities on management control system reviews, and evaluation of contract data and reports

Scope and Frequency of Reviews

Surveillance personnel should never become so involved in detail as to lose sight of the overall purposes of an acceptable cost and schedule control system, which is to provide timely, accurate cost/schedule data to both supplier and Government management personnel for decision-making. The scope and frequency of surveillance reviews in any and all areas should be dependent upon individual circumstances. These may include the extent of the supplier's internal system surveillance, size of the contract(s), prior surveillance experience, number of major contract changes, type of effort (development vs. production), overall status of the contract and risk.

Surveillance Schedule

In order to maximize the visibility and return for expended surveillance effort, it is necessary to be aware of anticipated contract activity. The EVMS Monitor's schedule should consider those areas of major activity on a contract and for each month, rank them in priority based on the number and dollar value of open cost accounts and work packages, by major functional organization. This schedule should project at least 3 months in advance of the current month and should be updated whenever significant changes occur. The data will be used as a guide in determining areas of emphasis for surveillance each month. The areas emphasized should normally be those areas with the highest rate of activity and those experiencing serious problems

Surveillance Scope

Surveillance activity should normally be planned in detail at least 3 months in advance for routine surveillance of those areas selected based on rate of activity. Routine surveillance should follow a planned schedule to insure thorough coverage of the following major surveillance areas: organization, planning and budgeting, accounting, analysis, revisions, indirect costs, and systems discipline. Also, one or more cost accounts in each major functional area should be reviewed quarterly in depth to assess the adequacy of integration of all subsystems at the cost account level and to assess the knowledge of system operations at the work package level. Surveillance of major problem areas will necessarily be on an individual basis and should address such questions as: (i) has the supplier properly identified the problem and its cause? (ii) has the impact of the problem been correctly assessed? and (iii) does the proposed corrective action address the pertinent issues?

General Approach to Surveillance

In evaluating the supplier's management control system after contract award, surveillance personnel must always remain cognizant of the requirements of DoD 5000.2-R Appendix VI. In order to assure that these requirements continue to be met, surveillance personnel may follow a number of surveillance steps:

Evaluate the Management Control System

Review the supplier's practices to assure they are in consonance with the accepted system description. As part of the compliance evaluation process, each supplier submits a formal description of the accepted management control system supported by detailed operating procedures. Once accepted, the system description and related procedures form the basis for the review of the actual operation. These documents should be reviewed and tests performed to determine if the supplier's practices comply with the stated procedures, and if management utilization of the system and data is appropriate. In the course of EVMS surveillance, the CMO/DCAA should be continually alert to supplier practices, procedures, and systems that do not meet the EVMS.

Evaluate System Changes

Evaluate all changes to the accepted system. The EVMS Monitor must be made aware of all changes to the supplier's management control system. In cases where a Pre-Approved Waiver has been negotiated between the CMO and the supplier, the EVMS Monitor will be notified within two weeks of an impending change to the accepted system.

(a) Changes will be evaluated as to compliance with the guidelines, impact on the integrity of the management control system, effect on contractual provisions, and cost of implementation. The proposed changes should be subjected to an immediate and exhaustive evaluation to determine acceptability and to allow for rapid implementation. The purpose is to detect those changes to an accepted management control system which are not in compliance with the criteria and may impact contract visibility.

(b) Changes to a management control system may affect many areas; e.g. procedures, reliability of data inputs and outputs, and/or variance analysis techniques. For example, format changes, modification of methods and standards, computer program changes, changes in budget priority, etc., could affect the reliability of data inputs and outputs. In addition, changes in BCWP calculation methods, variance analysis thresholds, and EAC updates, could affect the results of supplier variance analysis. These types of changes could directly affect the data upon which management decisions are made. See Chapter 2 for the procedures to be followed in the review and approval of management control system changes proposed by the supplier or advocated by CMO personnel

(c) In addition, the surveillance personnel should always be concerned that the system description accurately describes the accepted system and be vigilant for unauthorized supplier departures from the accepted system. Deviations should be brought to the immediate attention of the supplier and resolved in accordance with the procedures in Chapter 2.

Verify the Data Base and System Discipline

On a recurring basis, the PST should perform evaluations as to the validity and traceability of the supplier's cost and schedule database. By performing certain selective tests of the supplier's cost and schedule data flow and by comparing the results with other appropriate internal and external data reports, the PST should be able to ascertain the accuracy of the supplier's data base, and the discipline of both the supplier's management personnel and the management control system involved. In addition, by tracing the cost and schedule data flow, the monitor is able to determine that all applicable subsystems related to cost and schedule control are integrated and use the same data source.

Verify Reconciliations

Supplier reconciliations of appropriate financial data should be verified periodically to assure that data presented in various external reports and documents are valid, reconcilable, and traceable to other external financial reports and to cost and schedule data bases in the supplier's management control system. Differences isolated in the data must be explained consistently and logically. The mechanics of the supplier's procedure for reconciling data should be reviewed in the early stages of contract surveillance. After attaining assurance that reliable procedures are consistently followed, such verifications should be required less frequently.

(a) Since the control account is usually the level at which variance analysis is conducted and the level at which internal performance measurement is required by the EVMS, the reporting and accounting summarization process must begin at this level and extend vertically through the CWBS and horizontally through the functional organizations. The isolation of negative and positive variances also occurs at this level and provides the basis for variance analysis. This does not preclude measurement and control at lower levels.

(b) The depth, intensity, and frequency of reconciliations will be influenced by such factors as the relative importance of the data, past reliability of supplier's data, the degree of stability or change existing in the supplier's organization, the number of subsystems and operations, the number of contracts, etc. Decisions on frequency and depth of reconciliations and the actual techniques to be employed will be made at each location.

EVMS SURVEILLANCE REVIEW TECHNIQUES

As previously stated, each supplier's management control system is unique and therefore must be evaluated according to the existing situations, contract requirements, etc. The information that follows is intended for guidance when evaluating the adequacy of the management control system in operation.

Basic EVMS Requirements

Each element of the supplier's organizations must have a work authorization and release system, and logical work definition, work planning and responsibility assignment. The management control system must have integrated scheduling, budgeting, and manpower planning. In addition, the ability to trace, analyze, and control overhead costs and management reserve must be present. The supplier must have a cost accumulation and material control system to collect actual costs which are then compared to the budgetary figures, as a basis for cost performance measurement and analysis. The most important uses of any management control system are to define the work, establish a realistic plan for accomplishing the work, isolate variances from plan, identify and trace problems to their source, and develop alternatives for corrective action. A fundamental responsibility in the acquisition of major weapon/support systems is to assure that program visibility status reports and reliable EAC are generated periodically. Thus the real test of any management control system is its ability to provide accurate and timely indications of actual performance as a basis for sound forecasts of end results. The capability to allow for contractual revisions and yet maintain baseline integrity is a management necessity and should be one of the prime areas for evaluation by the EVMS Monitor.

Use of Guidance

Each of the major areas for surveillance is presented below with certain techniques and questions that may be used in determining systems integrity and assuring that the management control system continues to operate as accepted. The questions are not meant to be all-inclusive, nor are they intended to constitute a checklist to be routinely checked off. Rather the discussion is intended to provide guidance to assist the monitor in determining what should be considered in the performance of EVMS surveillance.

ORGANIZATION SURVEILLANCE

The organization guidelines address the work definition and the supplier integration of the planning, scheduling, budgeting, work authorization, and cost accumulation subsystems. The supplier is required to achieve full integration of these subsystems with each other, the CWBS and the organization structure.

Work Definition and Planning

(1) The work required to accomplish contract objectives must be based on only one CWBS constituting the framework within which the work is identified and scheduled, planned and controlled. Starting with the total contract, then the contract line

items, the work must be successively divided by the supplier in a manner which represents the way the work is to be performed. This is the point where CWBS elements, control accounts, and work packages are defined for planning and control purposes.

(2) It is the CMO responsibility to determine whether work scope is within the framework of the CWBS, whether the responsibility for the work is clearly defined, and whether performance measurement can be accomplished for the designated CWBS elements and for organizational functions.

Work Responsibilities Assignment

The supplier's organizational structure breaks out and organizes the personnel who will accomplish the work. The EVMS requires that each segment of work be the responsibility of only one organization. To accomplish this, the CWBS and organizational structure must be interrelated. This interrelationship may occur at any level, but it must occur at the level where performance of work is measured, normally the control account level.

Work Authorization

(1) Prior to work actually starting, and as far in advance as practicable, the supplier's work authorization system must define the work to be done and formally assign it to a responsible organization. In addition, schedules and budgets should be established for all work at appropriate levels in the CWBS. Task authorizations, work orders, or other supplier-unique operational forms may be used.

(2) Surveillance of work authorization systems throughout the supplier's organization is the responsibility of both the CMO and the DCAA auditor. The CMO monitors that specific work authorizations will flow down to the proper CWBS element and functional organizations responsible for work performance. The auditor's prime responsibility is to determine if the work authorization system provides a framework for properly accounting for all costs.

Subcontracting

Subcontracting may constitute a substantial portion of contract costs. Surveillance of this area should address planning, requirements determination, budgeting, procurement, inventory control, material accounting, analysis and visibility, and cost performance measurement for subcontracts. Subcontracts within applicable programs, excluding those that are firm-fixed-price, may be selected for application of these guidelines by mutual agreement between prime suppliers and the contracting DoD component, according to subsupplier value or the criticality of the subcontract to the program. Coverage of certain critical subcontracts may be directed by the Department of Defense, subject to the changes article of the contracts. In those cases where a subsupplier is not required to comply with the criteria, the Cost/Schedule Status Report (C/SSR) approach to

performance measurement set forth in DOD Instruction 7000.10 will normally be used unless inapplicable due to the limitations therein.

Periodically, conduct a review using questions similar to the following:

(1) Is all the work required to accomplish contract objectives identified, planned, scheduled, and controlled, to the maximum extent practical, within the contract work breakdown structure?

(2) Is the contract work successively divided within the work breakdown structure in a manner which represents the way the work is to be performed? At the lower levels of the work breakdown structure, are control accounts and work packages defined for the planning and control of cost and schedule?

(3) Are the subsupplier tasks clearly defined and identified to the appropriate CWBS element?

(4) Are the subsuppliers adequately monitored by the prime supplier?

(5) Are adequate methods for incorporating cost performance data from subsuppliers into the CWBS and associate reporting systems being used?

(6) Are the work authorization, planning, and budgeting processes defined and traceable to the work package level?

(7) **Are control accounts:**

(a) Adequately described and clearly defined and with start and end dates?

(b) The responsibility of a single organizational unit?

(c) Capable of segregating level-of-effort (LOE) from measured work for cost performance measurement purposes?

(d) Correlated with the CWBS?

(e) Planned by elements of cost; i.e., labor, material, other direct charges?

(8) **Are work packages:**

(a) Associated with work authorizations and identifiable within the supplier's basic planning documentation?

(b) Adequately described and clearly defined and with scheduled start and end dates?

(c) The responsibility of a single functional organization?

(d) Reasonable in duration or with sufficient value milestones so as to minimize subjective work-in-process assessments?

(e) Established in terms of dollars, manhours, or other measurable units?

(f) Properly classified as discrete or apportioned, and separated from level-of-effort work?

(9) Is LOE work minimized?

(10) Is responsibility for material requirements determination, procurement, inventory control, issue, and accounting clearly defined?

PLANNING AND BUDGETING CRITERIA SURVEILLANCE

Program Scheduling

(1) The EVMS requires that the supplier maintain a schedule plan which describes the sequence of work and identifies the interdependencies required for accomplishing the contract work. It also requires that the supplier's scheduling system be properly integrated with the work authorization and budgeting systems at the control account level. Further, the supplier must show planned and actual status of the contract effort performed by functional units within this organization. Analysis of the scheduling system should be performed to determine how planned and actual status is maintained, that the scheduling system is properly integrated with the budgeting and work authorization systems, and that it is formal, complete, and consistent.

(2) It is the CMO's responsibility to assure that the supplier has scheduled the work properly to meet contractual requirements. Particular attention should be paid to proper time phasing of tasks, traceability of schedules, and proper selection of milestones. The ability of the supplier to accomplish the work within the contractually established timeframe should be assessed.

Program, Planning and Budgeting

(1) Review of forward planning is a continual surveillance task. Different types of contracts (e.g., development or production) may necessitate varying degrees of forward planning. In addition, internal schedules must relate to the time-phased BCWS and the baseline in Format 3 of the CPR.

(2) As work is progressively defined in greater detail, budgets for the planned work should be concurrently assigned. Budgets may be stated in dollars, manhours, or other measurable units, but all work must receive a budget. The assignment of budgets to scheduled segments of work produces a time-phased budget against which actual performance can be compared. The establishment, maintenance, and use of this budget baseline are extremely important aspects of cost performance measurement.

(3) All PST members should be familiar with the supplier's total budgetary system, particularly contract budgeting. It is the DCAA's responsibility to evaluate the supplier's total budgetary system. The CMO's primary concern will be with the contract budget. In the program area the CMO is responsible for evaluation of the supplier's procedures in the broad area of planning, execution, status-ing, and cost performance measurement. The auditor evaluates labor and overhead rates and other factors used to arrive at estimated costs reflected by contract budgets and related variances.

Management Reserve

(1) The EVMS permits the establishment of management reserve which is that portion of the contract budget withheld for management control purposes rather than identified with the accomplishment of a specific task or set of tasks. The supplier is required to maintain adequate identification and controls for management reserve, and must record all changes to management reserve. While management reserve may be established at various levels, it is not to be included within the performance measurement baseline as this would distort the performance measurement. When management reserve is applied, it is then included in the performance measurement baseline. Management reserve does not include undistributed budget. (Undistributed budget in the EVMS and CPR context is for situations of short duration. Budget is "undistributed" only until budget planning can identify the budget to CWBS elements at or below the level reported in the CPR to the PM.)

(2) Changes in management reserve can provide an indication of contract status. Management reserve activity furnishes visible documentation of the supplier's understanding and performance of the contractual work requirements. Frequent or extensive use of management reserve may indicate trouble spots or a rearrangement of work requirements.

(3) It is the responsibility of the PST personnel to bring to the attention of the ACO any improper use of management reserve and/or early depletion of a major portion of the reserve. Monitoring of the application of management reserve is primarily the responsibility of the EVMS Monitor.

Accomplishment (BCWP) This represents one of the most important aspects of cost performance measurement. The methodology for establishing Budgeted Cost of Work Performed (BCWP) must be as discrete and objective as possible, reduce level of effort to a practicable minimum, and reduce or eliminate cost and schedule performance distortions for in-process work. Indicators and measures used for BCWP determination should be appropriate to the work content. PST members should ensure that the supplier adheres to the methodology for earning BCWP as described in the system description that was accepted by the Government or later revised in the appropriate manner.

Technique Periodically, conduct a review using questions similar to the following:

(1) Does the supplier maintain a schedule that describes the sequence of work and identifies the interdependencies (horizontally and vertically) required for development, production, and delivery requirements of the contract?

(2) How is the supplier's scheduling system integrated with the budgeting and cost accumulation systems for the various levels of the CWBS?

(3) Are the scheduling systems and budgetary documents used by the supplier properly integrated and traceable from the detail to the summary level?

(4) Are the indicators used in depicting planned and actual status accurate representations of the milestone, start, or completion dates of the effort they serve to identify?

(5) Are changes to the schedule adequately controlled?

(6) Are the budgetary techniques and the accumulation of actual costs consistent?

(7) Does the supplier budget and earn value in accordance with the accepted system description?

(8) Is Budgeted Cost Work Scheduled (BCWS) properly determined?

(9) Are the control account values and schedules traceable and reconcilable from work packages to various summary levels?

(10) Where management reserves are used, are they identified and controlled?

(11) Does the aggregate of all direct budgets, indirect budget allocations, undistributed budget, and management reserve equal the contract target cost plus the estimated cost for authorized work not yet priced? If not, is the baseline acceptable and has proper approval for baseline change been obtained?

(12) Is the scheduling of planned values for material consistent with the monthly time-phasing of control accounts?

(13) Are material budgets established at the control account level and based on defined quantities and estimated prices?

(14) Are the budgets for contract material procurement traceable to the material portion of the control account budgets?

(15) Are baseline adjustments relative to economic price adjustments properly and separately identified?

ACCOUNTING CONSIDERATIONS CRITERIA SURVEILLANCE

Cost Accumulation

The EVMS basically requires that BCWS, BCWP, and ACWP should sum directly from the control account level up the CWBS and across the functional organization structure to the contract level. After indirect costs are accumulated and allocated, they are applied at the level selected by the supplier for management control. They too must summarize from the applied level to the contract level without further allocation.

Material Accounting

(1) The supplier's method for recording direct costs for material, either on an applied or other acceptable basis, must facilitate cost performance measurement. It should provide for determination of unit or lot costs when appropriate. Where the applied direct cost basis is used, the material costs are applied to the applicable control account in the time period when material is: (i) actually consumed; or (ii) withdrawn from inventory for use; or (iii) uniquely identified to the contract and scheduled for use within 60 days; or (iv) composed of major components or assemblies that are specifically and uniquely identified to a single serially numbered end item. If a supplier's system is accepted on other than an applied cost basis, actual direct costs are recorded upon receipt of material, or upon payment or vouchering dependent on the system.

(2) In any event, the supplier's material accounting system should provide for: (i) price and usage variance determination; (ii) accurate cost accumulation which assigns the material costs to the

specific control account for which it was budgeted; (iii) recognized costing techniques acceptable to DCAA; and (iv) cost-effective material accountability. In addition, the supplier should be able to account for various types of material, such as high value or critical material, purchased parts, and subcontracted items.

(3) The supplier is required to maintain records of outstanding contract commitments for material. A methodical and timely review of material commitments versus budgets is extremely important. Timely determination of material price and usage variance is essential to effective control of costs. By comparing commitments and expenditures with material budgets, material cost variances are available long before issuing the material into work-in-process, giving management greater reaction time. When the variances indicate that material costs will exceed the budgets assigned, the supplier should reflect these differences in a revised estimated cost at completion.

ANALYSIS AND MANAGEMENT REPORTS SURVEILLANCE

Variance Analysis

The EVMS requires the supplier's management control system to have the capability to isolate variances, and identify the factors causing the variances, thus enabling supplier managers to develop alternative solutions and implement corrective action. The supplier is required to explain all significant cost and schedule variances (those that exceed established thresholds). It is the responsibility of the CMO to assure that the supplier's statements are accurate and timely and that any proposed corrective actions are feasible and reasonable within the scope of the contract. When quantity and quality changes result in schedule variance explanations, or cost variance explanations, evaluation of these explanations may require analysis by technical specialists of the CMO. In some instances, DCAA assistance may be required concerning rate variances, but CMO personnel should be familiar with this area in order to properly evaluate the explanation of rate variances.

Estimated Cost at Completion (EAC)

(1) The supplier is required to periodically develop estimates of projected costs at completion using all available information. The EAC should consist of actual costs to date plus latest revised estimates for all remaining work. Price variances applicable to material commitments should be reflected in the EAC, and the EAC should reconcile to the supplier's funding reports.

(2) The CMO, in conjunction with DCAA, should assure

that the supplier is consistent in the method of estimating cost at completion and properly explains not only the causes for any revised EACs, but also their impact on the contract. Although monthly reports to the Government include the supplier's current EAC, it should be recognized that major variances usually do not develop in a month's time and may be the result of many relatively small variances over a period of many months.

(3) When EACs indicate that cost and schedule targets are in jeopardy, timely actions by supplier and Government managers are required. After a supplier revises an EAC and at other appropriate times (e.g., when there is an unchanging EAC over a lengthy period of time or particularly when cost and schedule variances are significant) a thorough and coordinated evaluation of EAC by both CMO and DCAA surveillance personnel should be made. Whenever a substantial change in EAC is reported or otherwise indicated, the analysis should be designed to determine whether the new estimate is reasonable. The analysis should also determine whether the change should have been recognized earlier and, if so, what changes to the management control system may be necessary to prevent similar surprises in the future.

Technique

Periodically, conduct a review using questions similar to the following:

(1) Is the supplier's calculation of BCWP accurate?

(2) Does the CPR identify significant variances?

(3) Have the significant variances been traced to the lowest level necessary to establish the cause of each variance?

(4) Are the narrative descriptions of significant variances, identified causes, and proposed remedies valid and adequate?

(5) Do forecasts of costs at completion include consideration of existing variances?

(6) Are the established thresholds that define significant variances being adhered to?

(7) Does the variance analysis in the problem analysis section of the CPR reconcile with the supplier's internal variance analysis reports at various levels?

(8) Is detailed control account analysis of significant variances performed, and is proper management action, if needed, taken as a result?

(9) Is the EAC updated periodically to reflect current

performance and management insight?

(10) Do estimated resources required (labor, material, etc.) to perform the remaining work appear reasonable?

(11) Are projected labor and overhead rates appropriate?

(12) If material commitments or expenditures differ from budgets, is the difference reflected in EAC?

(13) Does the reported EAC agree with the EAC developed and used by the supplier?

(14) How are corrective action plans implemented and evaluated?

(15) Does the prime supplier have acceptable visibility of subsupplier performance?

(16) Does the method of incorporating subsupplier performance data into the prime supplier's management control system provide for accurate, traceable, cost performance measurement?

REVISIONS AND DATA MAINTENANCE SURVEILLANCE

Incorporation of Changes

Because of the inherent uncertainty in the development and production of a weapon/support system, there are bound to be contractual modifications and internal re-planning actions.

(1) Changes may be due to:

(a) A change in the contractual scope of work.

(b) The final negotiated price for authorized work differing from that estimated and budgeted.

(c) Re-planning to accommodate schedule changes, economic price adjustments, or other factors that may have caused the original plan to become unrealistic.

(d) Transfer of budget from one organization or CWBS element to another provided that corresponding work is also transferred.

(2) The EVMS requires that contract changes be expeditiously processed and incorporated in a timely manner and that authorized unpriced work be planned and controlled like

definitized work.

Baseline Integrity

To maintain a meaningful performance measurement baseline, the supplier's management control system must be capable of incorporating authorized changes so that all documents relating to affected elements reflect the change. Also, disciplines must be present to avoid unacceptable budget transfers or changes. Although internal re-planning does require contractual action, it may impact upon the performance measurement baseline.

Responsibility

The EVMS Monitor is responsible for assuring that the supplier incorporates revisions in a timely manner and maintains baseline integrity.

Technique

Periodically conduct a review using questions similar to the following:

(1) Does the supplier's change control system provide the information required for tracing the change through the entire planning system to determine the following:

(a) Effect on work authorization.

(b) Effect on budgets and schedules.

(c) Effect on the EAC.

(2) Are changes to the PMB made only as a result of contractual redirection, internal re-planning, or use of management reserve?

(3) Are these changes controlled, adequately documented, clearly traceable and accurately reported?

(4) Is the change control procedure adequate? Do the supplier's practices indicate they are observing their change procedures? Are changes incorporated in a timely manner?

(5) Are internally generated changes that effect the total time sequencing (beginning and end dates) of control accounts, reviewed and evaluated?

(6) Are procedures for adding or canceling work packages adequately and faithfully employed?

Indirect Cost Surveillance

Indirect cost accounts for a major portion of the costs of any contract and it is therefore imperative that surveillance include that portion of the supplier's management control system which control indirect costs. Many of the aspects which are important in the surveillance of direct cost management must be of equal

concern in the indirect cost area if EVMS surveillance is to be effective. These include the proper placement of responsibility, realistic planning and budgeting, periodic variance analysis, and proper accounting for indirect costs, both historical and projected.

Responsibility

It is the DCAA auditor's responsibility to analyze overhead cost control through evaluation of budgets and related procedures and practices, and to advise the CMO of any findings. Coordination between the ACO, other members of the CMO staff and DCAA is required to avoid duplication of effort in this area.

Review Questions

Analysis of a supplier's management of indirect cost should be performed periodically. Questions requiring answers might include the following:

(1) Are indirect cost pools clearly identified and is control responsibility assigned to managerial positions in a logical manner?

(2) Are indirect costs planned and budgeted on a time-phased basis coinciding with established accounting periods?

(3) Are indirect budgets established on a facility-wide basis commensurate with firm and potential business?

(4) Are the facility-wide indirect budgets updated in a timely manner to reflect the realization or non-realization of potential business and/or changes in the planning base?

(5) Are indirect costs and variances from budgeted amounts analyzed by management personnel at the proper level and is corrective action taken in a timely manner when necessary?

(6) Do the indirect rates used to compute the contract indirect cost estimates-to-complete properly reflect historical experience, economic escalation, anticipated business volume, and appropriate financial planning for the period of contract performance?

(7) Are projected indirect rates revised in a timely fashion to reflect changing workload projections, etc., to provide accurate EAC?

STATUS INDICATORS

One of the primary purposes of DoDI 7000.2 is to increase DoD visibility into the status of a supplier's progress. This gives management, both Government and supplier, early recognition of potential problems so that corrective action may be taken before they severely impact cost and/or schedule. The following is a list of indicators which may suggest potential or actual system problems. At the first indication that such problems exist,

surveillance personnel should investigate the area in detail to determine whether a system problem or a program problem is involved.

a. Inadequate work definition.

B. Difficulty in establishing realistic budgets within the constraint of target cost.

c. Large amounts of undistributed budget.

d. Lack of schedule integration, poor schedule control.

e. Frequent schedule deviations.

f. Frequent PMB changes.

g. Frequent use of management reserve.

h. Lack of coordination between supplier functional groups.

i. Poor variance analysis.

j. Large or frequent cost variances.

k. Failure to reevaluate EAC as the situation dictates.

1. Poor change procedures.

m. Lack of awareness of problems.

n. Consistently optimistic projections.

0. Lack of management attention and corrective action.

p. Subsupplier delays or extended subcontract negotiations.

q. Management control system failure to provide advance warning of major problems.

r. Frequent and extensive changes to plans.

s. Supplier plans not reflective of actual conditions and not being revised.

SURVEILLANCE SAMPLING

Because only a limited amount of data can possibly be examined by surveillance personnel, the use of sampling is necessary in order to accomplish meaningful surveillance. One of the most

common methods of selecting data for surveillance is through sampling techniques.

Technique and Sample Size

Which one of the sampling techniques to be used (selective, stratified, or random sampling) and sample size are decisions to be made. In highly automated systems which have proven reliable in the past, the probability for error is very low and so a relatively small sample is usually sufficient to arrive at a reliable conclusion. For manual systems where the error ratio significantly increases, a larger sample will be required for reliability.

Sample Selection

The surveillance plan should be constructed so that it gives due consideration to the critical areas of the contract. The samples should normally be selected from those areas that are weak, suspected of high risk, or high dollar value.

Critical areas include but are not limited to:

(1) Areas that directly affect contract milestones, e.g., elements on the critical path.

(2) Areas associated with high technical risk or high dollar amounts, e.g., new welding techniques.

(3) Areas that may be affected by large or critical subcontracts, e.g., sole source situations.

(4) Areas that have shown out-of-tolerance performance to date, either favorable or unfavorable.

EVALUATING SUPPLIER'S ESTIMATE AT COMPLETION

One of the most important outputs of any performance measurement system is the Estimate to Complete (ETC) that, when combined with actual cost to date, is submitted to the Government in the CPR. If the ETC is not done according to the system description, or is invalid because of inaccurate or improper supporting rationale, then the EAC is useless.

The purpose of this chapter is to provide guidance in the evaluation of ETC performed by a CAM. The questions directed to the CAM should be confined to that subject. However, if in the course of the discussion with the CAM, information is provided that indicated a problem in some other area, that problem should be investigated to its resolution. For example, if in substantiating that past performance is considered in projecting the ETC, it becomes apparent that the earned value is not being properly calculated or the BCWS is not substantiated, the interviewer is not constrained from pursuing these and other pertinent topics at this time.

ETC Evaluation

The discussion with the CAM should take at last at least 45 minutes to accomplish. In order to make the most out of the time available, before the discussion, the following should be accomplished:

1) Compare the supplier's last month's internal performance measurement report to the current month's report at the control account level. For each control account selected, examine each element of cost (direct labor dollars, direct material dollars and ODC dollars) for changes in the EAC.

2) Look at the time phasing of the forecast and the work authorization document for a control account and compare the time phasing of the ETC to the schedule for the remaining work.

3) Look at the scope of work on the work authorization for a control account and note the types of work to be accomplished.

4) Once the above is done for all the open control accounts, select the control accounts for detailed review and make an appointment with the CAM. Inform the CAM which CA's will be reviewed in order for the documentation to support the ETC will be available.

At the discussion with the CAM

a. Select one or two control accounts for a detailed review.

b. Be sure that only the CAM and no one else does the detailed explanation of the ETC:

c. Cover the following elements in the explanation:

1) Evaluation of each work package in the control account;

2) An estimate of resources to complete each Work Package;

3) The time phasing of the required resources;

4) How are these resource requirements coordinated with functional/program management;

5) Input document for the performance measurement system; and

6) Explanation of the new variance at completion for the control account.

d. If the EAC has not changed because of a comprehensive EAC, have the CAM substantiate the reasons

why.

e. If the CAM only has Level of Effort activity, he/she still must be able to substantiate the ETC. Do not accept "I only have LOE" as an explanation!

f. If the CAM is also a Functional Manager or IPT Leader, review how the resource requirements of all the tasks in his/her area are coordinated with functional management. As a minimum, this should involve a comparison of total manpower with manpower loading in the supporting functions.

Summary

Be as fair as you possibly can during the evaluation of the ETC, but also be firm in your requirements. If the data is not available at the discussion, request that it be delivered to the interview site. If problems are noted, state the problem and give the person a chance to explain. If the problem still exists, document it and then complete the discussion.

CAM DISCUSSION TIPS

The CAM discussion is a conversation directed to a definite review purpose. To accomplish this, a person assigned to the team must plan for the discussion and use effective interviewing techniques.

Plan for the Discussion

a. The person conducting the discussion should be thoroughly familiar with the EVMIG and the supplier's performance measurement system to understand what the CAM in the discussion is telling and showing you. It is equally important to familiarize yourself with the current status of the CAM's control accounts you want to discuss by reviewing the appropriate internal reports.

b. Have available a list of specific questions you expect to ask during the discussion. These questions should include items you discovered during routine surveillance, questions relative to procedure, questions from the program office, or questions regarding specifically how the person does something. Some questions may be partially formulated prior to the discussion, but it is likely that most will come spontaneously as a result of the conversation during the discussion. Take documents to the discussion that might be needed to amplify a given question, be needed to make a point, or which will be the subject of the discussion.

c. When setting up the discussion, try to be as explicit as possible in explaining the subject to be discussed so that the interviewee is prepared for you. If the CAM is a member of an IPT, this would be a good time to inform him which member of his team you would like at the discussion.

d. "Think" the discussion through, i.e. review the questions you plan to ask and know what answer you should receive.

During the discussion

a. In beginning of the discussion, recognize that the other person may be on the defensive. It is essential that you put that person at ease and secure his/her cooperation. To do this, ensure that the time, place, and other conditions of the discussion will be as informal as possible, and that there will be a minimum of interruption.

b. Introduce yourself and your subject and explain the basic objectives and purpose of the discussion. In establishing rapport, it is often helpful to open the conversation with simple questions on somewhat routine phases of his/her responsibilities to get them talking of matters he/she understands well and them proceed to more complex matters.

c. Establish a level of communication. Try to determine the person's familiarity with the technical aspects of the subject. Structure your discussion and questions in such a manner to allow the person enough "room" to discuss freely how they do what they do without putting words in their mouth. The person being interviewed should use documents when answering questions, use the "show me" technique.

d. Take notes during the discussion. Ask for documents that are referenced during the course of the discussion for later reference. Resist the temptation of asking for a copy of every document you are exposed to. If documentation requested during the discussion cannot be made available until after the discussion, be sure to get a commitment as to when you should receive the data.

e. Phrase you questions so that they cannot be answered by a yes or no. The objective is to get the person to talk freely to you rather than merely answering your questions. For example, do not ask if he/she does a certain task, ask how it is done. In this manner, you can also determine if the person is doing what they are supposed to.

f. Allow the person ample time to talk and collect his/her thoughts before speaking. The most valuable information often follows what may appear to you to be an embarrassing pause. You should talk typically, less than 25% of the time during an effective discussion.

g. Give the person the opportunity to appear at his/her best. When deficiencies are uncovered, avoid giving an impression of cross-examining the person or of "witch-hunting".

Be alert to any innovative techniques the CAM has developed that may be of value to others in the supplier's organization.

h. Ensure you are not side tracked by those you are not talking to. Probe any line of thought that appears pertinent, and move quickly to the next question if the conversation moves into areas that are deemed irrelevant.

i. Should the person's responses be unclear to you, express your lack of familiarity or understanding at once. Do not hesitate to say "please tell me more about this", or, "That's not entirely clear to me", or, "you are getting into an area with which I am not familiar".

COST PERFORMANCE DATA

Earned Value Management System

The PM obtains cost and schedule performance information to monitor the status of a contract through the use of the CPR and C/SSR. However, in order for the PM to obtain valid data from these reports, the supplier's management system must have meaningful disciplines understandable to both the supplier and the Government. Without these disciplines, no management report can be considered trustworthy. To provide uniform guidance, a set of criteria was developed against which the supplier's management system must comply. Details of the criteria's application are explained in DLA HANDBOOK 8400.2. The CPR is then obtained from the supplier by specifying data item (DID) DI-MGT-81466 on DD Form 1423, Contract Data Requirements List. The report data elements are explained below.

The criteria require the supplier to plan work into detailed work packages. Based on the starting and stopping dates of each work package and on the budgets assigned, a budget is developed for each month of the contract. At the close of each reporting period, the supplier reports the dollar amount of work budgeted during each reporting period and the cumulative work budgeted to date (only cumulative values appear on the C\SSR*).* This is the BCWS to be completed.
In addition to the BCWS, the supplier is required to provide a report of the budgeted dollar value of work completed during each reporting period and the cumulative total (only cumulative values appear on the C\SSR). This is the BCWP. Regardless of the actual cost to perform the work, the BCWP includes only the budgeted cost (BCWS) for each element of work that the supplier has completed. The difference between the BCWP and BCWS is the dollar value of the schedule variance (SV), that is, the dollar value of work the supplier is ahead of or behind schedule. Significant variances (variances breaking the threshold defined in the CDRL)

must then be analyzed to determine the cause, impact, and corrective action required.

The supplier is also required to accumulate the costs for effort performed on the contract during each reporting period and the cumulative total (only cumulative values appear on the C/SSR). This is the ACWP. The difference between the BCWP and ACWP is the cost variance (CV). Again, significant variances must be analyzed to determine the cause, impact, and corrective action required.

All data elements BCWS, BCWP, and ACWP must be collected and sorted in such a manner that they can be summarized both by the supplier's functional organizational structure and by the product oriented WBS (only the WBS is shown in the C/SSR).

Finally, the supplier must have a means for estimating costs at completion of the contract. An EAC must be generated at control account, major functional, major subcontract, WBS element, and total contract levels.

Work Breakdown Structure (WBS)

MIL-HNDBK 881 (latest edition) was developed in order to obtain a consistent reporting base from the varied defense suppliers. MIL-HNDBK 881 identifies Government standardized WBS and elements. A WBS is a product-oriented family tree composed of all the hardware, software, services, and other work tasks required during the development and production of a defense materiel item.

The supplier must be able to identify variances at the control account level. The cost account level is the intersection of the WBS and the organizational structure where performance of the work is managed. However, the Government must be provided with summarized data: summarized both for the WBS identified in the contract and for the functional organizations within the plant. Normally, the supplier is required to summarize progress at the third level of the WBS for reporting to the Government. Because all costs can generally be identified at a level lower than the lowest level of the WBS, the supplier can readily summarize such dollar values to any WBS level required for internal reporting or to any WBS level required for reporting to the Government. In order to comply, the supplier must analyze summarized dollar variances down to the control accounts causing the variance.

Reporting at a summary level has the advantage in that small variances will usually "wash out" (positive and negative variances cancel each other), but larger variances will normally remain and be reported on the WBS or functional formats of the CPR.

If either the supplier or the Government desires to know the cause of a variance, the precise area can be pinpointed by working

progressively downward through the data. The use of a CPR, oriented around a common and consistent WBS, gives the Government the visibility it needs over the item being produced and offers both the Government and the supplier a common means of communication.

Cost Performance Report (CPR)

The CPR consists of five formats generated by the supplier to report performance to date, identify and explain significant cost and schedule variances, identify future man loading requirements, and explain changes to the performance measurement baseline.

The purpose of the CPR is to provide the PMO with the status of the program and the impact of problems, outline any trends that may be developing, and provide a basis for a detailed analysis of the financial health of the contract.

- Format 1 - WBS: provides data to measure cost and schedule performance by summary level WBS elements.
- Format 2 - Functional/IPT categories: provides data to measure cost and schedule performance by organizational or functional cost categories.
- Format 3 - Baseline: provides the time-phased PMB changes to the contract for the current month and a forecast of the BCWS for future periods.
- Format 4 - Manpower Loading: provides manpower loading actual and forecasts for correlation with WBS/functional EACs.
- Format 5 - Problem Analysis: provides a narrative report used to explain significant cost and schedule variances and other identified contract problems.

Cost/Schedule Status Report (C/SSR)

C/SSR is basically a scaled-down version of Format 1 of the CPR, although there are some important differences that should be clearly understood to avoid misapplication. For example, the C/SSR does not require performance reporting on a functional basis (CPR Format 2) nor is incremental, current-period reporting required. In addition, the C/SSR does not require the man loading projections and baseline reporting which are a part of the CPR. The most important difference between the CPR and the C/SSR involves the definitions for the data elements BCWS and BCWP. For CPR reporting, BCWS and BCWP must be the result of the direct summation of work package budgets. The C/SSR provides for the determination of these values through means other than work packages. The specific methodology to be used is a negotiable item between the supplier and the DoD project manager. Thus, the C/SSR gives the supplier greater flexibility in

the selection of an internal performance measurement technique than does the CPR.

The C/SSR format consists of two major sections: contract data and performance data. Contract data are intended to establish the overall contract value for baseline purposes. Since the C/SSR is primarily designed to reflect contract cost/schedule performance, a complete understanding of the contractual situation is necessary. The performance data provide contract status on a cumulative-to date basis for selected elements of the WBS. In addition, the supplier's latest revised estimate of cost at contract completion is provided for comparison with contract budgets. General and Administrative budgets and costs, undistributed budgets, and management reserve budgets are also shown separately from amounts applicable to the individual WBS elements. The bottom line should reflect total contract performance to date and projected contract overrun or under run. However, this is only true if the sum of the lower level budgets at completion equals the contract budget base at the total contract level. If a situation should exist where the total lower 4evel budgets exceed the contract budget base, it means that an overrun has been built into the baseline plan. The report then must be viewed in a different perspective since the performance data no longer reflects contract cost performance, only performance against that overrun plan.

4b: Performance Measurement Baseline

INTRODUCTION

This chapter is about analyzing the supplier's PMB by the EVM Monitor and the PST. To be effective, it is recommended that the PMB as reported by the supplier be reviewed on a monthly basis. The information in this chapter will help the reviewer in the process.

PERFORMANCE MEASUREMENT BASELINE (PMB) DEFINED

It is the time-phased budget plan against which contract performance is measured. It is made up of the time-phased budgets both direct and indirect cost. The PMB contains the sum of the direct and indirect budgets, cost of money, undistributed budget, and General & Administrative costs. The PMB equals the total allocated budget less management reserve.

Locating The PMB In The CPR and C/SSR

The PMB can be found in columns (2) through (16) of block 8 a. through e. of Format 1 and columns (2) through (16) of block 5 a. through e. on Format 2. The PMB can also be found on Format 3 Baseline which indicates last months PMB, the changes for the reporting period, and the resulting end of period baseline. The PMB can also be found in columns (2) through (9) of block 7 a. through e. on the C/SSR. Although the C/SSR does not include CPR Format 3, Baseline, the supplier is required to explain undistributed budget and amounts of Management Reserve applied during the reporting period in the Narrative Explanation section of the report.

BASELINE CONTROL

The key requirement applicable to cost performance concerns the need for effective baseline establishment and control. Changes to the baseline have a dramatic effect on the usefulness and meaning of cost performance reports such as the CPR and C/SSR. This chapter deals with suppliers management of the PMB, the impact of baseline changes on performance reporting, and suggestions on how to review and validate the baseline changes reported in Format 3 of the CPR.

Baseline integrity is another way of explaining baseline control. It requires a supplier to maintain a meaningful PMB, the performance measurement system must be capable of incorporating authorized changes (internal & external) so that all documents relating to affected elements reflect the change. Also, disciplines must be present to avoid unacceptable budget transfers or changes. Although internal re-planning does not require contractual action, it may impact upon the PMB. Therefore, it is the responsibility of the EVMS Monitor and the PST for assuring that the supplier incorporates revisions to budgets in a timely manner and maintains baseline integrity.

Management Reserve (MR)

Management Reserve is defined as an amount of the total allocated budget withheld for management control purposes rather than designed for the accomplishment of a specific task or set of tasks. It is not part of the PMB.

Use of management reserve depends a great deal on individual management philosophy which varies from supplier to supplier. In many cases, management reserve is held at a summary level and controlled by the PM, while others provide reserves to individual functional or IPT managers. Some managers use management reserve as problems develop, others prefer to show the cost variances and maintain the reserve as a kind of balancing account at the summary level. Regardless of how it is utilized, management reserve should be kept visible and their use reported as indicators of management action. The supplier's EVM explains the control and use of management reserve and the forms used to document its use.

BASELINE CHANGES

The baseline changes frequently as a result of contract changes and internal re-planning. Internal re-planning does not change the total amount of budget allocated to the contract, but may effect the time-phasing of the effort, thus changing the shape of the baseline which will be reflected in the baseline changes section of CPR Format 3. Changes to the baseline may be caused by rescheduling the work to accommodate changing conditions, moving work or budget from one organization to another, redistributing resources required to accomplish the scheduled work, adding or deleting work, varying employee skill levels, and other reasons.

Supplier Changes To The Baseline

Changes must be accomplished in accordance with the system description procedures that describe how the change is controlled, and what documents are utilized for meaningful performance measurement to be accomplished.

Supplier Discipline For Baseline Changes

The following disciplines should be employed by suppliers when budget changes are made:

- Internal budget changes must be documented by an authorizing form, such as a baseline change request.
- Revisions to the baseline should be recorded in a master budget log that will reconcile to original budgets.
- Work should not be moved from one organization to another without moving the budget along with it.
- Retroactive changes to budgets for completed work should not

be made except for corrections of arithmetic errors, etc.

- Significant changes to control account budgets should be reported to the PM.

- Management Reserve transactions that effect the PMB should be approved by the PM.

- All records pertaining to the use of management reserve should be maintained as a separate ledger within the master record.
- All changes to the PMB should be accomplished in a timely manner.

Baseline Control and CPR Format #3

Format #3 of the CPR is intended to assist PMs (supplier and Government) in keeping track of baseline changes. The format provides a monthly update of the PMB to reflect the overall effects of changes made during the month.

Most baseline changes occur from two sources, changes to the contract by the buying activity in adding or deleting authorized work and internal re-planning by the supplier as an example; changes resulting from design reviews, changes in labor rates, mix or hours, test failures and rework activity. The above are all legitimate revisions to the baseline and the supplier will use the procedures outlined in the EVM system description to affect the change.

BUDGET ADJUSTMENTS

Using budgets originally designed for future work to cover current or near-term problems results in a condition commonly referred to as the **"rubber baseline."** The effects of such budget adjustments on performance measurement is to delay cost visibility until later in the program, thus reducing the alternatives available to managers for program redirection direction or termination. Suppliers' performance measurement systems must have procedures which prevent baseline distortions of this type. Specifically, such procedures should prohibit transfers of budget from one task to another unless the adjustment is part of a formal reprogramming effort. When during analysis of Format 3 it is determined that budgets for future work effort have been changing for no apparent reason for a number of past CPR submittals the supplier may be moving budget without moving the work with it.

At this point, the EVM Monitor should ask the supplier the reasons for the current condition if not already explained in CPR Format #5. The supplier's budget change request documentation is a good source of information for checking whether budgets are

moving without work. The PST should be reviewing the budget change requests on a routine basis and alerting the EVM Monitor when this condition occurs.

Over-Budgeting Near Term Effort

Front Loading is the practice of over budgeting the first part of a contract and under budgeting the downstream effort that prevents meaningful evaluations of contract performance. Front loading can occur inadvertently in situations where the downstream work is not well defined in the beginning of the contract. The more vague and ambiguous the far-term effort is allowed to remain, the more likely that from loading will occur. This problem could surface during the early months of a program in unusually large current positive cost variances in mostly labor control accounts. An effort should be made during the IBR to ensure that budgeted amounts identified to future effort are realistic and that the work is defined to the maximum extent possible early in the contract. If this practice is uncovered during analysis, the supplier should be notified immediately in order to begin re-planning those control accounts effected.

Importance Of Baseline Control

Establishment and maintenance of the PMB are the most important aspects of performance measurement. Changes to the baseline must be carefully controlled to avoid distortions in contract cost performance reporting.

ANALYTICAL TECHNIQUES

The Government utilizes the CPR and C/SSR to make sound management decisions. The information contained in these reports is very useful but requires an in depth analysis to determine the current status of the contract. This chapter will focus on how to analyze these reports using various analytical techniques that are essential to the analyst.

Cumulative Contract Performance Status

The BCWS indicates the amount of work (in dollars) scheduled to be accomplished by a certain date. The BCWP indicates the amount of work (also in dollars) actually accomplished. The BCWP can, therefore, be compared with the BCWS to determine the schedule status of the contract. The ACWP indicates the actual cost to perform the work. The ACWP can be compared with the BCWP line to determine if costs are exceeding budgets. Since BCWP represents the work actually accomplished, all comparisons for both schedule and cost are made against the BCWP line.

Total Budget and Estimate at Completion

The Budget at Completion (BAC) of the PMB is the cumulative total of all lower level control account budgets, Undistributed Budget, Overhead Budgets, General & Administrative budgets, and Cost of Money Budgets. The BAC of the PMB excludes management reserve and is synonymous with BAC, CBB - MR. The Contract Budget Base is the total of all budget authorized on the contract, or Negotiated Cost plus Estimated Cost of Authorized Unpriced work. The CBB is also calculated by taking the BAC of

the PMB and adding MR. It is important to note the difference between the BAC of the PMB and CBB, calculations will be made throughout this guide using both of these terms. The EAC is the estimate of final costs at the end of the contract. Typically, the supplier's EAC is defined as the Latest Revised Estimate.

The following are typical formulas utilized in analyzing supplier performance measurement data:

Percent CV: Simply taking BCWP - ACWP to arrive at the dollar CV does not always tell the complete story. A variance is significant relative to some base. CV should be related to the amount of work accomplished. To calculate cumulative CV%, the following formula should be used:

$$CV\% = \frac{CV}{BCWP} * 100$$

This means that the project is XX percent over budget. CV percent can be calculated on a current period and/or cum-to date basis.

Percent SV. Simply taking BCWP - BCWS to arrive at the dollar SV also does not always tell the whole story. Again, a variance is significant relative to some base. SV should be related to the amount of work planned to have been accomplished. To calculate cumulative SV%, the following formula should be used:

$$SV\% = \frac{SV}{BCWS} * 100$$

This means that the project is XX percent behind schedule. SV percent can be calculated on a current period and/or cum to-date basis.

Percent Complete. This is the relationship of the amount of budget (work) accomplished to date (BCWP) to the amount of budget (work) planned for the total contract. The usual base in determining percent complete is the BAC*.

$$\text{Percent Complete} = \frac{BCWP}{BAC^*} * 100$$

*CBB may be substituted for BAC if all the MR is expected to be used. A portion of the MR expected to be used could be added to the BAC. CPR format 1, column (15), MR line will reflect the amount of MR expected to be consumed before the end of the contract. Reason: MR expected to be used will eventually become a part of the BAC of the PMB. In chapter 6 of this guide, we will assume the supplier will consume all of MR and you can see how this changes the results of our analysis as portrayed in the

Performance Analyzer. Percent complete should be calculated using the following formula:

This should then be compared to the percent scheduled (planned) to have been accomplished to date $\frac{BCWS}{BAC^*} * 100$ and the percent spent to date $\frac{ACWP}{BAC^*} * 100$.

Always use the common denominator when doing this comparison. The conclusion drawn by this comparison should yield results compatible with the calculated SV percent and CV percent).

Percent Spent: This is the relationship of the amount spent-to-date (ACWP) to the budget amount specified on the contract.

$$\frac{ACWP}{BAC^*} * 100$$

Again, CBB may be substituted for BAC if all the MR is expected to be used. A portion of the MR expected to be used could be added to the BAC (see discussion in paragraph *4.2.5.)*.

The use of LRE is predicated on the fact that we are in the realm of cost-type contracts and all (or almost all) of the costs will be accepted and borne by the Government. For FPI contracts, the ceiling should be considered when determining LRE.

$$\textbf{Percent (Spent)} = \frac{ACWP}{LRE^*} * 100$$

Percent Scheduled: This is the relationship of the budget scheduled to date to the budget amount specified on the contract.

$$\frac{BCWS}{BAC^*} * 100$$

Again, CBB may be substituted for BAC*.

Cost Performance Index (CPI): This is an indication of the cost efficiency with which work has been accomplished.

$$CPI = \frac{BCWP}{ACWP}$$

A CPI can be calculated for both current period and cum-to date data. An efficiency index of 1.0 would indicate that cost is on

target whereas an index of 1.1 would indicate a cost under run (higher efficiency). The monthly CPIs can be plotted on a performance trend graph.

Schedule Performance Index (SPI): This is an indication of the schedule efficiency with which work has been accomplished.

$$SPI = \frac{BCWP}{BCWS}$$

An SPI can be calculated for both current period and cum-to date data. An index of 1.0 would indicate that the supplier is performing on schedule whereas an index of 1.1 would indicate an ahead of schedule condition (higher efficiency). The monthly SPI can be plotted on a performance trend graph.

To Complete Performance Index (TCPI):

Many times the question is asked about the overrun or under run at completion of a contract. This method helps to determine if actuals for a contract may exceed the BAC. This is done by calculating the CPI that must be achieved to bring the actuals in at budget. This is called the TCPI and is calculated by taking the work remaining and dividing it by the budget remaining as shown:

$$TCPI = \frac{BAC^* - BCWP}{BAC^* - ACWP}$$

*CBB may be substituted for BAC if all the MR is expected to be used. Or a portion of the MR expected to be used could be added to the BAC.

If the CPI and TCPI do not start to approach each other as the months progress, the possibility increases that there will be an unfavorable variance at completion.

The TCPI to meet the LRE is calculated by:

$$TCPI = \frac{BAC^* - BCWP}{LRE - ACWP}$$

*CBB may be substituted for BAC if all the MR is expected to be used. Or a portion of the MR expected to be used could be added to the BAC.

Differences of more than 5% between the CPI and TCPI should be questioned and the supplier's LRE should be checked for reasonableness.

PROBLEM ANALYSIS

Narrative Problem Analysis

When a CPR or C/SSR is received, the problem analysis page (CPR Format 5 Problem Analysis or C/SSR Narrative Explanations) should be closely reviewed to determine if the supplier has provided the specific causes for significant variances, the impact the problem has to the program, the action to be taken to correct these problems and the period of time needed to correct them. The supplier should take special pains to ensure this page is clear and complete. If the project manager or supporting personnel cannot fully understand the analysis from the written page, the supplier should be immediately informed and be required to submit a more detailed analysis in writing.

The narrative analysis should include, although not necessarily be limited to, the following:

- Identification and characterization of the problem. For example, labor variance, material variance, design problem, and test failure.

- Corrective action to be taken, including estimated get-well date and identification of an individual responsible for completion the corrective action.

- Identification of the actual variance and percent deviation from plan.

- Traceability of all MR/UB activity, as required by DI-MGMT-81466. The supplier will make all internal records of the MR/UB activity available for review by the system program office or surveillance personnel upon request.

- Explanation of reasons for significant shifts in time phasing of the PMB and or manpower as required by DI- MGMT-81466.

Variance Thresholds

It is the responsibility of the project manager to define significant variances. Generally, variance thresholds are stated as a set percentage and/or dollar amount on the DD Form 1423. Occasionally, the thresholds are established by contract stage.

Generally, thresholds are established requiring a variance analysis for any cost or schedule variance that exceeds a certain percentage of BCWS or BCWP and/or exceeds an established dollar minimum (for example, +/-% of cum BCWS, or $_____, whichever is greater). When initially establishing the thresholds, it may be advisable to provide for tightening these thresholds as the contract progresses, in view of the increased cumulative values of BCWS,

BCWP, and ACWP.

Another approach is to establish the thresholds as a percentage of the BAC rather than as a percentage of BCWS and BCWP (for example, l00 (BCWP-ACWP)/BAC for CV threshold; l00(BCWP-BCWS)/BAC for SV threshold). This results in a threshold which becomes a progressively smaller percentage of cumulative BCWS and BCWP as the contract progresses. Since this type of variance threshold may be relatively loose early in the contract, the threshold for early variances may be limited by adding a threshold based on a percentage of cumulative BCWS (for example + /- ____% of BAC, or +/-% of cumulative BCWS, whichever is less).

Another approach that is commonly used is to report the "Top Ten" variances. This involves the identification by the supplier and the procuring activity of the top cost and schedule drivers (in terms of WBS and functional reporting elements) on the program. The total number of elements identified will depend on the size and complexity of the program and can range from as few as five to as many as twenty. Based on this list, the supplier will provide analysis of the associated variances such that both the supplier and the program offices will have visibility into the cost, schedule and technical status of these elements. As the program progresses through its various stages, the list is updated to add elements that become drivers and to delete those no longer considered to be in this category. This approach reduces the volume of variance analysis included in Format 5 of the CPR and ensures continuing focus by all parties involved on the important issues.

No matter what approach you use, put a statement in the CPR CDRL requiring thresholds to be reviewed once a year by the Government and supplier and adjusted if necessary.

FORECASTING

Numerous studies have been conducted to determine useful EAC methods. One recommendation is the use of an EAC trend extension using a .2 and .8 weight of SPI and CPIs, respectively, because various studies have shown this to be a reliable forecasting formula.

$$EAC = ACWPcum + \frac{BAC^* - BCWPcum}{(.2)(SPI) + (.8)(CPI)}$$

BAC* = Budget at Completion of the Performance Measurement Baseline (excludes Management Reserve; synonymous with CBB - MR).

*CBB may be substituted for BAC if all the MR is expected to be used. Or a portion of the MR expected to be used could be added to the BAC. CPR format 1, column (15), MR line will reflect the amount of MR expected to be consumed before the end of the

contract. Reason: MR expected to be used will eventually become a part of the BAC of the PMB.

The AFMC EAC formula can be a useful tool to estimate final costs at completion. As with any trend extension EAC formula, the cost analyst should (1) calculate an EAC for each of the lower level WBS items on the CPR or C/SSR and then summarize to the contract total, (2) consult the expertise of the various technical experts (manufacturing, engineering, etc.) in the organization and use good judgment. The above EAC is but one of many trend extension EAC formulas that can be used to estimate final costs at completion.

EAC projection using BAC and CPI:

A commonly used EAC projection technique is a simple division of the BAC of the PMB by the cum-to-date CPI efficiency factor

$$EAC = \frac{BAC^*}{CPIcum}$$

* CBB may be substituted for BAC if all the MR is expected to be used. Or a portion of the MR expected to be used could be added to the BAC).

It should be noted that this formula does not consider schedule performance to date. This technique assumes that the efficiency with which the remainder of the work will be accomplished will continue.

AUTOMATED DATA ANALYSIS PROGRAM

wInsight Analysis Program

wInsight is a computer software tool specifically designed for analyzing performance analysis data. The tool supports the Integrated Product Development (IPD) management philosophy and is designed to be flexible and easy to use to locate problem areas, analyze data, and update EACs. Its use within the DCMA should promote the sharing and utilization of performance measurement data among analysts, program managers, control account managers and PST/IPD members.

wInsight Administrator is a stand-alone companion to the wInsight tool and adds database maintenance, reporting, and data transfer capabilities to the analysis capabilities of wInsight. The wInsight databases for all contracts analyzed are updated by the analyst (initial setup, monthly data input, recalculation, etc.) using the

Administrator tool. A new contract can be created automatically when importing an X12 import file directly from a supplier, eliminating the time consuming initial setup by the EVMS Monitor.

C/S Glue, a companion software to wInsight that integrates schedule data with wInsight cost data allowing simultaneous cost and schedule management. It provides the ability to relate actual tasks being worked on with the cost performance data for evaluating status and developing estimate at completion. Risk + is an additional software tool that works with C/S Glue and wInsight in providing probabilistic cost and schedule analysis that uses Monte Carlo simulation techniques to identify, manage, and mitigate risk.

Preferred Tool

CMO offices are encouraged to utilize wInsight as their principal Earned Value analysis tool. It is fully supported and licensed for use by any DCMA employee. Copies are available through the District EVMS Process Champion. The software is supported via on-line help http//:www.cs-solutions.com, Email: support@cs-solutions.com a technical hotline telephone number 1-310-798-6396 (C/S Solutions Inc.).

4c: Program Status/Surveillance Reporting Process

INTRODUCTION

The reporting of status of any given program is the result of the effort of many individuals within the CMO organization. This chapter is about the reporting agreements that are negotiated with the PMO and PI report as well as the EVMS Monitor EVMS Activity report.

STATUS REPORTS TO THE PROGRAM OFFICE

The CMO is responsible for submitting recurring program status reports to the Program Office as specified in the MOA. These reports generally come from two sources, one is the PI and the second is the EVMS Monitor. In order for these reports to be submitted if required by the MOA to the program office on a regular basis, there will definitely be a need for a PST. The PI as well as the PST are assigned by the Commander in writing. The PI acts as the PST Team Leader. The PI is responsible for the status report to the PM and must rely on inputs from the PST members for the information in the report. The EVMS Monitor is responsible for the EVM Status Report to the PI and also must rely on support from the PST for the contents of his report.

Surveillance Plan Report Requirements

The Program Status Report, including the EVMS reporting requirements, are normally defined in the MOA. The distribution, additional content, format and frequency of reports will be as agreed-to in the respective program MOA or contract surveillance plan.

Memorandum Of Agreement Report Requirements

The MOA will outline all EVMS reporting requirements required by the PMO. Most MOA's between program offices and DCMA will contain similar language that requests the CMO keep the PMO advised of the status of the supplier's EVM System. Normally this is accomplished in a monthly written report transmitted directly to the PMO or submitted to the PI for consolidation into the Monthly Assessment Report prior to submission to the PMO. The MOA should address the following:

- Assure supplier is using the EVM system to manage
- Evaluate changes to the accepted system
- Insuring that system discipline and integrity are maintained
- Perform continuous analysis of system to ensure integrity, frequency and level of detail consistent with contract risk
- Compare CPI vs. TCPI, compare schedule variance to time based schedules, etc.
- Inform the PMO on uncorrected deficiencies
- Perform periodic evaluations of contract EAC and generate independent EACs on a specific interval
- Receive, evaluate, reconcile and process external supplier performance and financial reports and verify they comply with contractual requirements.

Program Integrator (PI) Report	Most MOAs will require the PI to submit a monthly comprehensive assessment report of program status, highlighting potential or current problems and proposed solutions utilizing the PST. The EVMS Monitor will provide input to the PI report.
Joint Supplier/DCMA Surveillance Report	A copy of the Joint Surveillance Report should be sent to all Government Program Offices that have contracts utilizing that supplier's EVM system.

APPENDIX A

PROCEDURE

Withdrawal of Acceptance of a Non-Compliant EVM System

WITHDRAWAL of ACCEPTANCE of a NON-COMPLIANT EVM SYSTEM. When a supplier fails to maintain a previously accepted system and will not take actions to restore it to compliance with the guidelines, withdrawal of the acceptance or suspending approval of the supplier's EVMS may be recommended by the CMO (See Flow Chart). Prior to the initiation of any withdrawal action, all attempts to have the supplier correct the discrepancy shall be pursued. When an EVMS Monitor suspects that a supplier's EVMS no longer is compliant with the EVMS Guidelines, the following steps shall be taken by the CMO:

1. The DCMD EVMS Process Champion will be notified of the problem.

2. If the DCMD EVMS Process Champion concurs a problem exists, the CMO will notify the PMOs that a problem exists..

3. The CMO will apprise the supplier of the finding and request the problem be corrected to satisfy the EVMS Guidelines. The EVMS Monitor will monitor the corrective action by the supplier to completion.

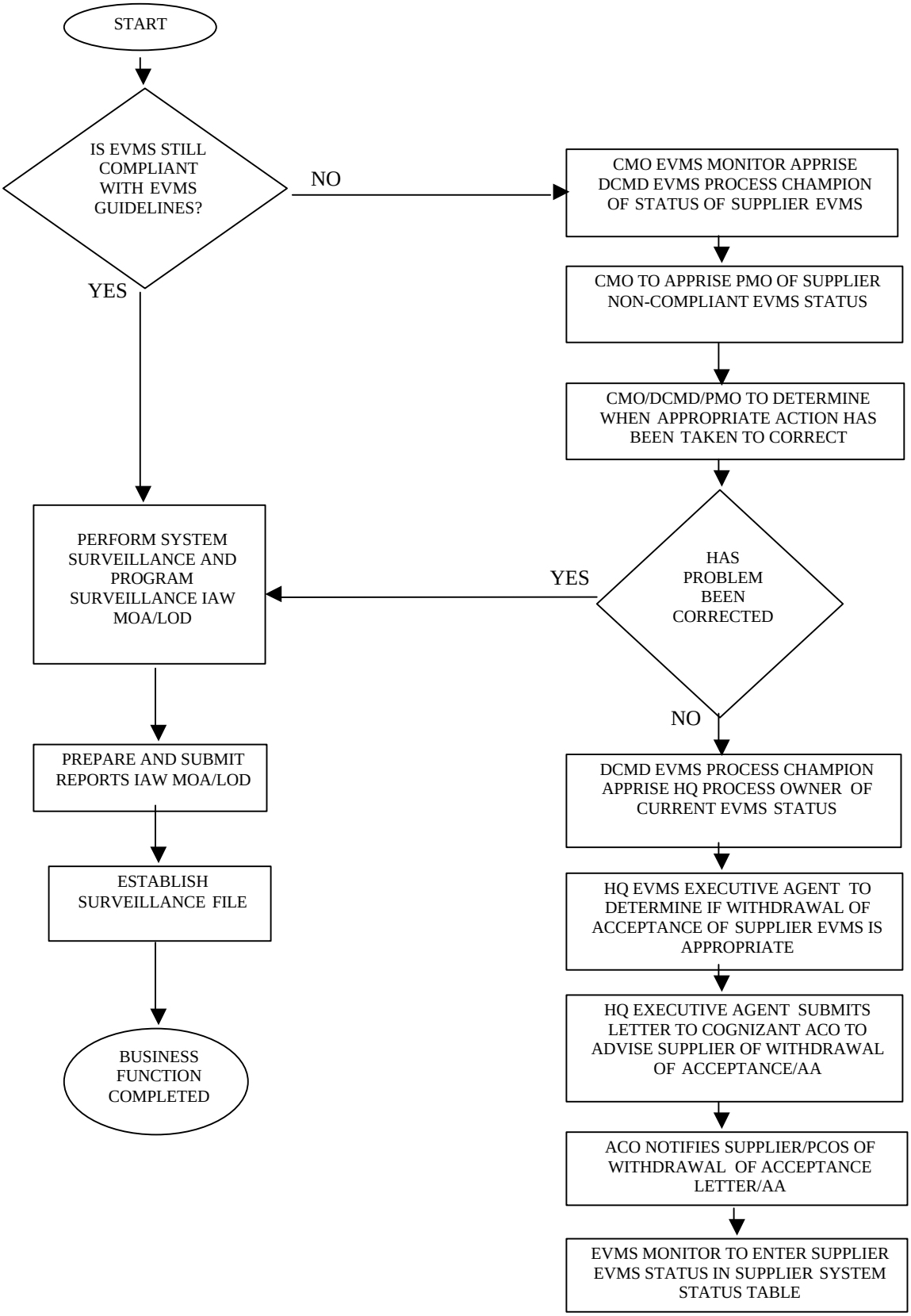
4. If the supplier fails to comply with the corrective action request, the DCMD EVMS Process Champion shall notify the HQ EVMS Process Owner and EVMS Center. HQ EVMS Process Owner shall notify the DCMA Executive Agent

5. The HQ EVMS Process Owner shall make arrangements to meet with the supplier and determine what contractual remedies should be invoked. All attempts shall be taken to persuade the supplier to comply with the EVMS Guidelines.

6. If the supplier does not respond satisfactorily, the cognizant ACO may request withdrawal or suspension of the supplier's EVMS Letter of Acceptance (LOA)/Advance Agreement (AA).

7. If the supplier does not respond satisfactorily, the Executive Agent may withdraw or suspend the LOA/AA. The ACO notifies the supplier and the PCO(s) of the withdrawal of the LOA/AA . When an acceptance has been withdrawn or suspended, the supplier may not claim to have an approved system until a new DoD Letter of Acceptance or AA has been issued. The EVMS Monitor shall enter the status of the supplier's EVMS in the Supplier System Status Table.

WITHDRAWAL OF ACCEPTANCE OF A NON-COMPLIANT EVM SYSTEM



Appendix B

LIST OF ACRONYNMS

AA	Advance Agreement
ACO	Administrative Contracting Officer
ACWP	Actual Cost of Work Performed
ANSI	American National Standards Institute
BAC	Budget at Completion
BCWP	Budgeted Cost for Work Performed
BCWS	Budgeted Cost for Work Scheduled
C/SSR	Cost/Schedule Status Report
CACO	Corporate Administrative Contracting Officer
CAM	Control Account Manager
CAR	Corrective Action Report
CMO	Contract Administration Office
CBB	Contract Budget Base
CCDR	Supplier Cost Data Reporting
CDRL	Contract Data Requirements List
CFSR	Contract Funds Status Report
COM	Cost of Money
CPI	Cost Performance Index
CPR	Cost Performance Report
CWBS	Contract Work Breakdown Structure
DACO	Divisional Administrative Contracting Officer
DCAA	Defense Contract Audit Agency
DCMA	Defense Contract Management Command
DFARS	Defense Federal Acquisition Regulation Supplement
DID	Data Item Description
DOD	Department of Defense
DODI	Department of Defense Instruction
EAC	Estimate at Completion
EDI	Electronic Data Interchange
ETC	Estimate To Complete
EVM	Earned Value Management
EVMIG	Earned Value Management Information Guide
EVMS	Earned Value Management System
FAR	Federal Acquisition Regulation
G&A	General & Administrative
IBR	Integrated Baseline Review
IPT	Integrated Product Team
LOA	Letter of Acceptance
LOD	Letter of Delegation
LOE	Level of Effort
MIL-HDBK	Military Handbook
MOA	Memorandum of Agreement
MR	Management Reserve
OTB	Over Target Baseline
PCO	Procuring Contracting Officer
PDR	Program Design Review

PI	Program Integrator
PM	Program, Project or Product Manager
PMB	Performance Measurement Baseline
PMO	Project Management Office
PMR	Program Management Review
POC	Point of Contact
PST	Program Support Team
RDT&E	Research, Development, Test & Evaluation
RFP	Request for Proposal
RFQ	Request for Quotation
SOP	Standard Operating Procedure
SOW	Statement of Work
SPI	Schedule Performance Index
SPI	Single Process Initiative
TAB	Total Allocated Budget
TCPI	To-complete Performance Index
UB	Undistributed Budget
VAC	Variance at Completion
VAR	Variance Analysis Report
WBS	Work Breakdown Structure
WP	Work Package

Appendix C

Glossary of Terms

The following definitions and acronyms appear within this document:

Actual Cost of Work Performed (ACWP)	The costs actually incurred and recorded in accomplishing the work performed within a given time period
Actual Direct Costs (ADC)	Those costs identified specifically with a contract, based upon the supplier's cost identification and accumulation system as accepted by the cognizant Defense Contract Audit Agency (DCAA) representatives (See Direct Costs).
Administrative Contracting Officer (ACO)	The individual within the Contract Administration Office (CMO) responsible for ensuring that the functions described in DFAR 242.302 are completed by the supplier in accordance with the terms and conditions of the contract.
Advance Agreement (AA)	An agreement between the supplier and the Contract Administration Office concerning the application of an approved earned value management system to contracts within the affected facility.
Allocated Budget	(See Total Allocated Budget)
Applied Direct Costs (ADC)	The actual direct costs recognized in the time period associated with the consumption of labor, material, and other direct resources, without regard to the date of commitment or the date of payment. These amounts are to be charged to work-in-process when any of the following takes place: Labor, material, or other direct resources are actually consumed; Material resources are withdrawn from inventory for use; Material resources are received that are uniquely identified to the contract and scheduled for use within 60 days; Major components or assemblies that are specifically and uniquely identified to a single serially numbered end item are received on a line flow basis.
Apportioned Effort (AE)	Effort that by it self is not readily divisible into short-span work packages but which is related in direct proportion to measured effort.
Authorization to Proceed (ATP)	Official authority for the supplier to begin work. Usually issued by the procuring contracting officer
Authorized Work	That effort which has been definitized and is on contract plus that effort for which definitized contract costs have not been agreed to but for which written authorization has been received.

Bill of Material (BOM)	A listing of material items required to complete the production of a single unit. When actual or expected prices are applied**,** it becomes the Priced Bill of Material (PBOM).
Budget at Completion (BAC)	The sum of all budgets established for the contract. (See Total Allocated Budget).
Budgeted Cost for Work Performed (BCWP)	(Earned Value) The sum of the budgets for completed work packages and completed portions of open work packages, plus the applicable portion of the budgets for level of effort and apportioned effort.
Budgeted Cost for Work Scheduled (BCWS)	(Planned Value) The sum of the budgets for all work packages, planning packages, etc., scheduled to be accomplished (including in-process work packages), plus the amount of level of effort and apportioned effort scheduled to be accomplished within a given time period.
Contract Budget Base (CBB)	The negotiated contract cost plus the estimated cost of authorized unpriced work.
Contract Administration Office (CMO)	The organization assigned responsibility for ensuring that the supplier complies with the terms and conditions of the contract.
Contract Data Requirements List (CDRL)	A compilation of all data requirements that the supplier is obligated to submit to the Government**.**
Contract Work Breakdown Structure (CWBS)	The complete work breakdown structure for a contract. It includes the DOD approved work breakdown structure for reporting purposes and its discretionary extension to the lower levels by the supplier, in accordance with MIL-HNDBK 881(1atest version) and the contract work statement. It includes all the elements for the hardware, software, data or services that are the responsibility of the supplier.
Control Account	(formerly called Cost Account) A management control point at which budgets (resource plans) and actual costs are accumulated and compared to earned value for management control purposes. A control account is a natural management point for planning and control since it represents the work assigned to one responsible organizational element on one program work breakdown structure element
Cost Accounting Standards (CAS)	Established by the Cost Accounting Standards Board (CASB) to ensure consistent and proper accounting for direct and indirect costs applied to Government contracts.

Cost Performance Report (CPR)	A contractually required report. prepared by the supplier, containing information derived from the internal EVMS. Provides status of progress on the contract.
Cost/Schedule Status Report (C/SSR)	A performance measurement report established to provide information on smaller contracts.
Cost Variance	A metric for the cost performance on a supplier program. It is the algebraic difference between earned value and actual cost (Cost Variance = Earned Value - Actual Cost). A positive value indicates a favorable position and a negative value indicates an unfavorable condition.
Defense Contract Audit Agency (DCAA)	The organization tasked with monitoring a suppliers design and implementation of an acceptable accounting system.
Direct Costs	Any costs that may be identified specifically with a particular cost objective
Discrete Effort	Tasks that are related to the completion of specific end products or services and can be directly planned and measured. (Also may be known as work packaged effort.)
Earned Value	(or Budgeted Cost for Work Performed) The value of completed work expressed in terms of the budget assigned to that work
Earned Value Management System (EVMS)	An integrated management system that uses earned value to measure progress objectively.
Earned Value Management System Guidelines	The set of 32 statements, established by DOD 5000.2R, which define the parameters within which the supplier's integrated cost/schedule management system must fit.
Estimate at Completion (EAC)	Actual direct costs, plus indirect costs allocable to the contract, plus the estimate of costs (direct and indirect) for authorized work remaining.
Estimate to Complete (ETC)	That portion of the EAC that addresses total expected costs for all work remaining on the contract.
Focal Point	The principle(s) of contact for coordination and exchange of information related to EVMS and C/SSR policy and guidance. DOD Component Focal Points normally reside in the service or organizational headquarters
Indirect Costs	Costs which, because or their incurrance for common or joint objectives, are not readily subject to treatment as direct costs.
Initial Compliance Review	A Government review done at a suppliers facility to assess

	supplier application of EVMS principles
Integrated Baseline Review	A joint review of the supplier's performance measurement baseline by the Government and supplier PMs and the technical staffs to determine 1) if the baseline captures the entire technical scope of work consistent with contractual schedules, and 2) if the baseline has adequate resources assigned.
Integrated Management System (IMS)	The management system and related sub-systems which establish the relationship between the cost, schedule and technical aspects of the work, and to measure progress, accumulate actual costs, analyze deviations from plans, forecast achievement of milestones and completion of contract events and incorporate changes to the contract in a timely manner.
Letter of Delegation (LOD)	A document assigning contract administration functions from one CMO to another, usually in a prime-subsupplier relationship.
Level of Effort (LOE)	Effort of a general or supportive nature that does not produce definite end products.
Management Council	Multi-functional, multi-organizational teams located at DCMA Contract Administration Offices that communicate ideas, implement change, and accelerate improvements in the acquisition process including a forum for the Single Process Initiative.
Management Reserve (MR)	An amount of the total allocated budget withheld for management control purposes rather than designated for the accomplishment of a specific task or set of tasks. It is not a part of the Performance Measurement Baseline.
Memorandum of Agreement	An agreement between the PM and a CMO establishing the scope of CAS responsibilities.
Negotiated Contract Cost (NCC)	The estimated cost negotiated in a cost-plus-fixed-fee contract or the negotiated contract target cost in either a fixed-price-incentive contract or a cost-plus-incentive-fee contract.
Network Schedule	A schedule format in which the activities and milestones are represented along with the interdependencies between activities. It expresses the logic of how the program will be accomplished. Network schedules are the basis for critical path analysis, a method for identification and assessment of schedule priorities and impacts.
Organizational Breakdown Structure (OBS)	A functionally-oriented division of the supplier's organization established to perform the work on a specific contract.

Overhead	(See Indirect Cost definition.)
Performance Measurement Baseline (PMB)	The time-phased budget plan against which contract performance is measured. It is formed by the budgets assigned to scheduled control accounts and the applicable indirect budgets. For future effort, not planned to the control account level, the performance measurement baseline also includes budgets assigned to higher level CWBS elements, and undistributed budgets. It equals the total allocated budget less management reserve.
Performing Organization	A defined unit within the supplier's organization structure, which applies the resources to perform the work.
Planned Value	see Budgeted Cost for Work Scheduled
Planning Package (P/P)	A logical aggregation of work within a control account, normally the far-term effort, that can be identified and budgeted in early baseline planning, but can not yet be defined into work packages.
Program Integrator	The PI serves as the DCMA single point contact on selected program-managed contracts and leads the Program Support Team (PST) in providing contract performance insight to the Program Management Office (PMO).
Program Support Team	PSTs normally include Contract Administration specialists with expertise in engineering, manufacturing, quality assurance, earned value management and contract administration. They assess the supplier's critical systems and processes and monitor contract execution for cost, schedule, and technical performance as well as compliance with contractual requirements.
Responsible Organization.	A defined unit within the suppliers' organization structure which is assigned responsibility for accomplishing specific tasks
Schedule	A plan which defines when specified work must be done to accomplish program objectives on time.
Schedule Variance	A metric for the schedule performance on a program. It is the algebraic difference between earned value and the budget (Schedule Variance = Earned Value - Budget). A positive value is a favorable condition while a negative value is unfavorable.
Significant Variances	Those differences between planned and actual performance that require further review, analysis, or action.
Single Process Initiative	A process that allows suppliers to have existing contracts modified to replace multiple Government-unique management and manufacturing systems with common-wide systems. Supplier proposals are reviewed and approved by a Management Council, which is composed of senior representatives from customer

	buying activities and program management offices, DCAA, DCMA, and suppliers.
Statement of Work	The document that defines the work scope requirements for a program.
Supplier	An entity in private industry that enters into contracts with the Government.
Third Party Certification	Approval of an EVMS, to a standard recognized by DOD as equivalent to the EVMS Guidelines, by an independent organization accredited by the standards authority and recognized by DOD.
Total Allocated Budget (TAB)	The sum of all budgets allocated to the contract. Total allocated budget consists of the performance measurement baseline and all management reserve. The total allocated budget will reconcile directly to the contract budget base. Any differences will be documented as to quantity and cause.
Undistributed Budget (UB)	Budget applicable to contract effort that has not yet been identified to CWBS elements at or below the lowest level of reporting to the Government.
Variance at Completion (VAC)	The difference between the total budget assigned to a contract, WBS element, organizational entity or cost account and the estimate at completion. Variance at Completion = Budget at Completion - Estimate at Completion. It represents the amount of expected overrun or underrun.
Work Breakdown Structure (WBS)	A product-oriented family tree division of hardware, software, services, and other work tasks which organizes, and displays and defines the product to be developed and/or produced and relates the elements of work to be accomplished to each other and the end product(s).
Work Package (WP)	Detailed jobs, or material items, identified by the supplier for accomplishing work required to complete the contract. A work package has the following characteristics: It represents units of work at levels where work is performed; It is clearly distinguished from all other work packages; It is assigned to a single organizational element; It has scheduled start and completion dates and, as applicable, interim milestones which are representative of physical accomplishment It has a budget or assigned value expressed in terms of dollars. man-hours, or other measurable units: Its duration is limited to a relatively short span of time, or it is subdivided by discrete value milestones to facilitate the objective measurement of work performed, or it is level of effort; It is integrated with detailed engineering, manufacturing, or other schedules.